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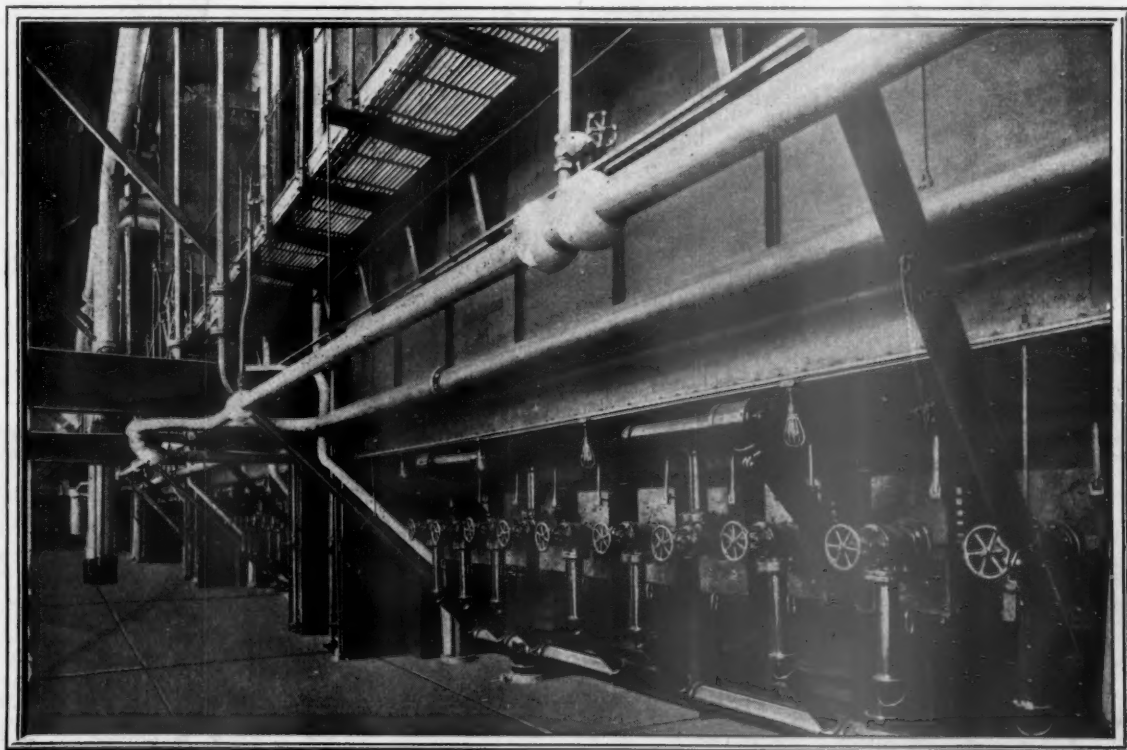
# Railway Age

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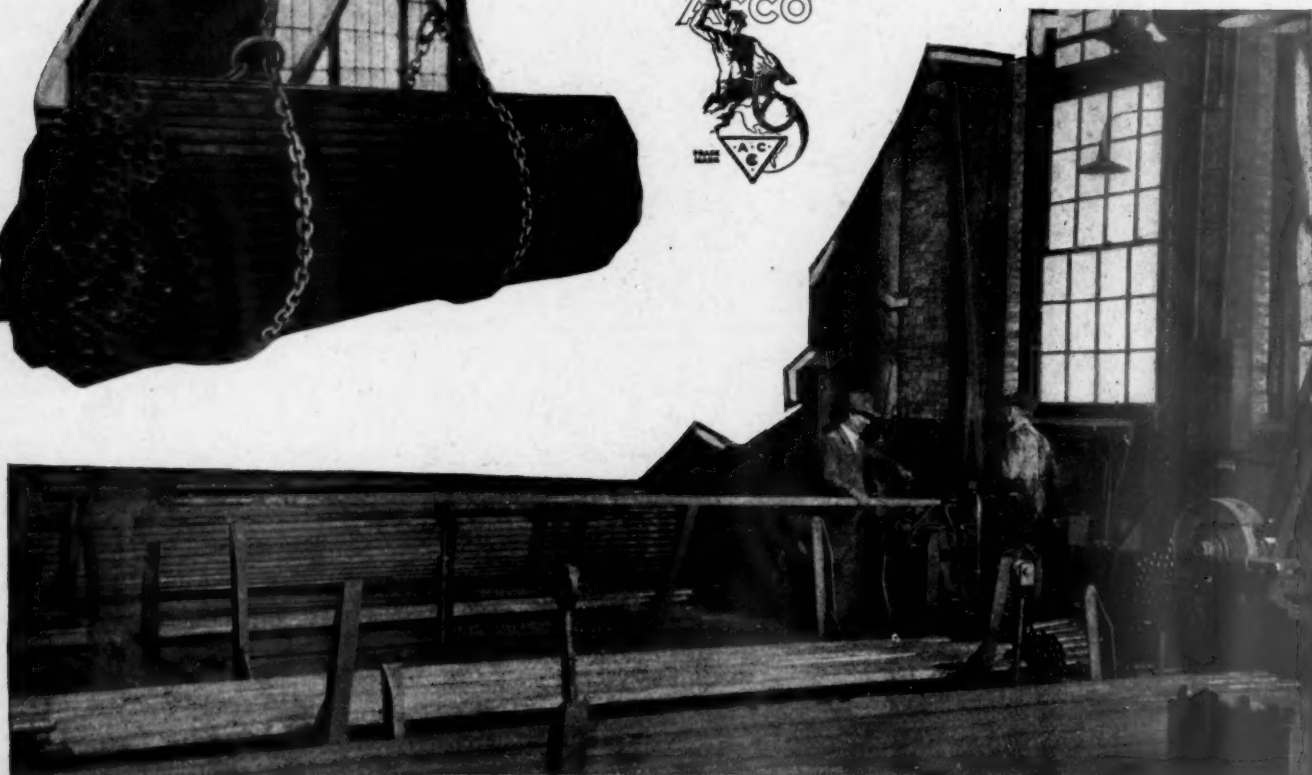
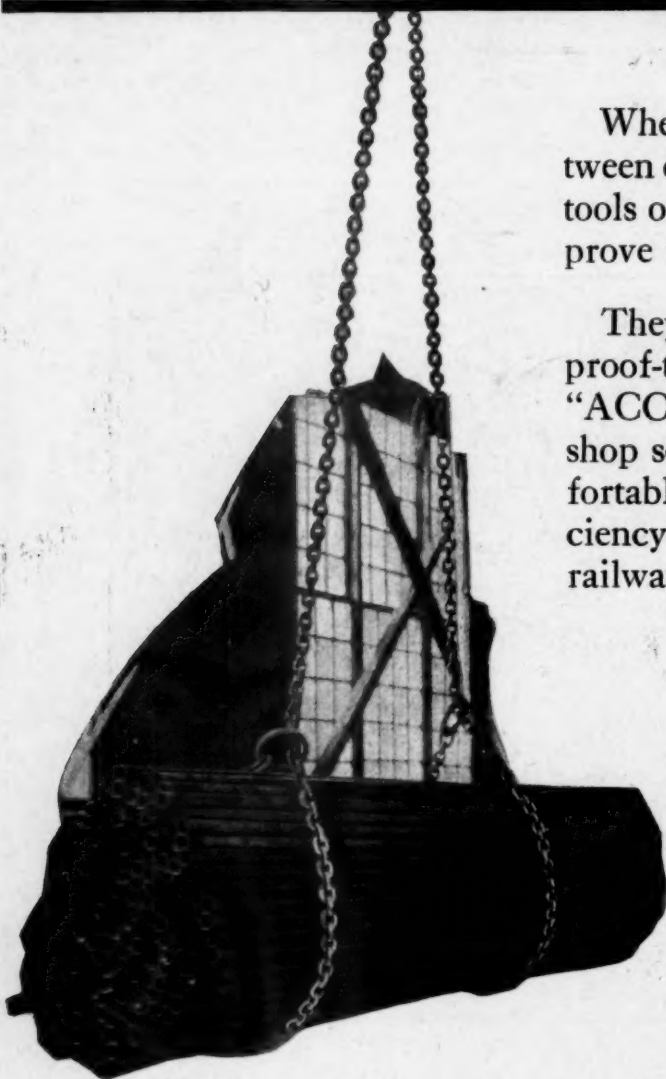
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# EDITORIAL

## Railway Age

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With the prospect that a car shortage will develop within the next few weeks, the railroads will naturally give special

### Increasing Car Mileage

attention to getting the maximum mileage from their freight cars. It is interesting, in this connection, to analyze freight car movement and find where the equipment spends the most time. The operating statistics for the first six months of 1922 show that on the average, each freight car made a round trip in 17 days, exclusive of the time spent on the repair track. During the round trip, the car was in motion about 26 hours under load and about 14 hours empty. The average time for loading and unloading each car was probably very close to the free time allowed—two days in each case. This leaves about 11½ days per trip as the time which the car spent in yards awaiting movement. The railroads must cut down this idle time in yards.

As a general rule, railroads proceed with deliberation in authorizing new projects of one kind or another involving

### Another Road Adopts Water Treatment

large expenditures; this emphasizes the importance of any project which is once accepted, and makes it of special interest to those roads which perhaps had considered doing the same thing but have desired first to determine the results obtained by others. The recent action of the Chicago, Milwaukee & St. Paul in equipping an entire region of 400 miles of lines with water-treating facilities is therefore noteworthy. As described elsewhere, 14 treating plants in all were installed in the belief that the treatment of water in the locality selected would effect benefits in the way of lessening boiler repairs, reducing fuel bills and improving the transportation service generally that would far overbalance the expenditure for it. That the company was justified in this belief appears already to have been brought out by the results obtained in the short period which has elapsed since the installation of the last treating plant.

Most of the railroads at present are facing a prospective shortage of motive power. Under this condition, they should

### Increasing Ton-Miles Per Locomotive

naturally do everything possible to get the most ton-miles per month from each locomotive, not only by expediting repairs, but also by careful attention to operating methods. Just how this can be done on each division is a matter for the individual road to work out. In general, better results will be obtained in slow freight service by decreasing the tonnage and increasing train speed. In the first six months of 1922, freight trains made an average of 11.8 miles an hour, which shows the speed of drag freight is still very low. Actual operating results on divisions with fairly heavy grades have shown that when the average speed is 15 miles an hour, the locomotives and the crews can make far more ton-mileage per month than when the trains are loaded to the limit with the speed reduced to about 8 miles an hour. The cost of handling the traffic may be slightly greater at the higher speed, but during the next few months the real problem will

be to haul all the traffic that is offered. If the roads can move more freight and increase the gross revenues by running trains faster, the higher transportation cost will be unimportant.

The use of written orders to direct train operation on single or multiple track lines can be largely, if not entirely, elimin-

### Discarding Written Train Orders

ated by making slight changes in existing automatic block signal installations or by the installation of a proper signal system where none is now in service. The Erie has demonstrated what can be accomplished in this respect on double track and the same method, with such few changes as are necessary, can be applied as successfully to single-track operation. Such a system does not take the control of the trains out of the hands of the dispatcher, but it eliminates the written order and the inherent defects which go with it. Safety of train operation is increased, as trains are handled by signal indication with all the safeguards which such a method provides. An article elsewhere in this issue on conveying train orders by signal indication is worthy of careful study and consideration.

Labor leaders have had a good deal to say during the past year or two about the campaign of Wall Street and business

### Who Left the Door Open?

interests generally to destroy the unions and to bring about the "open shop." As a matter of fact many employers have been far less concerned about destroying the unions than they have about keeping the unions from destroying them, and a good part of the "open shop movement" has been nothing more than an effort to cure some of the unions of their habit of bluffing and occasionally calling strikes on the slightest provocation. However, the outcome of the railroad shopmen's strike, which, by reason of individual settlements on the roads that still have room for many of their former employees, is now rapidly becoming a thing of the past, begins to make it appear that Mr. Jewell and some of his associates have become our leading open shop promoters. The shops of most of our leading railroads have become open shops because the union men who wanted to keep them closed have walked out and allowed others to take their places.

The Service Bureau of the American Wood Preservers' Association calls attention to a common fault of engineers in

### Bring Your Specifications Up to Date

specifying timbers to be given preservative treatment, which is a heritage from the days when timber preservation was unknown. Owing to the fact that the sap wood of most species of timber when used in the natural state is much more susceptible to decay than the heartwood, it has long been the practice to specify that structural timber shall be "all heart," "85 per cent heart," etc. However, in adopting the use of treated timber many engineers still retain the restrictions on the use of sap wood. Owing to the fact that material

which contains considerable sap wood, particularly in the case of Southern pine, can be obtained at less cost than that which is almost entirely of heartwood, the restriction on sap wood in specifications for lumber results in an unnecessary waste of timber and in an increased cost to the user. After a piece of timber has been subjected to preservative treatment, the sap wood is as immune to decay as the heartwood; moreover, investigations by the United States Forest Products Laboratory involving over 300,000 tests show that the sap wood is equally as strong as the heartwood. There is, however, still another reason why the restriction on the amount of sap wood should be removed. The sap wood takes the preservative much more readily than the heartwood and, therefore, a much more thorough treatment is insured in a stick that contains appreciable proportions of the former.

In last week's issue of the *Railway Age* there were reported orders for 160 locomotives, this being the largest number

#### Large Locomotive Purchases

reported for any one week so far this year with a single exception. That exception was the preceding week in which orders for 226 locomotives were reported. The orders reported in last week's issue included 100 locomotives for the New York Central, 10 for the Western Maryland and 50 for the St. Louis-San Francisco. Since last week's report, orders have been reported for 50 locomotives for the Baltimore & Ohio and 50 for the C. & O., and these will be found in the report for the present week. This, however, does not tell the whole of the story. In last week's issue there were also reported inquiries for a total of over 300 locomotives, orders for a good proportion of which may presumably be expected in the near future. This shows that the railway supply field now has a buying movement for locomotives such as it has not been fortunate enough to have had in a long, long time. The existence at last of some railway net income, the real need for power and the accentuated realization of this need resulting from the shopmen's strike, presumably lead as the reasons for the present heavy purchases. Whatever the reasons, we can at any rate feel optimistic and happy—so long, at least, as the critics hold off from declaring that it would have been better if the orders for locomotives had been placed earlier, before the rush instead of during the rush, and with deliveries before or during the heavy coal movement instead of after it.

Some lost opportunities may return, but it will probably be a long time before railroads can again purchase machine

#### A Lost Opportunity

tools at the low prices prevailing in the early months of this year. Manufacturers were then willing to make price concessions which can by no means be obtained now. Roads purchasing machines in March, therefore, are doubly fortunate because they bought at the bottom of the market and secured machines of great subsequent assistance and value during the strike. Since March there has been a distinct upward trend in machine tools prices due to the increasing cost of raw materials, such as pig iron and brass, coupled with increasing labor costs. At some points it is now difficult to get at any price the skilled labor required in the manufacture of machine tools. To accentuate the rising price tendency, there are clear indications that both the railroads and industrial manufacturers will soon be in the market for machines, an adequate number of which are not now available. Stocks of new machines built at the high cost prevailing during the war have been largely liquidated and second-

hand machine tools of the better quality have also, to a great extent, been absorbed. In consideration of these facts, it is safe to predict an increase in machine tool prices, especially when the railroads and other industries begin to compete with each other in securing early deliveries. Certain railroads refused to place machine tool orders early in the year because they thought that prices were going still lower, whereas the opposite has been true. The sooner these orders are now placed, the more machines can be purchased with fixed appropriations.

The average railroad power plant, as a general rule, receives comparatively slight attention from railroad mechanical

#### Railroad Power Plant Economies

officers. If it functions to the extent of furnishing the required amount of steam, power, lights, heat, compressed air and water it is liable to be forgotten and is rarely visited. An investigation is made in connection with a new development to determine the power that will be required and consideration is given to the selection of boilers, engines, generators, air compressors and some of the other accessories. The judgment used in the selection will affect both the capital investment and later the operating costs. Other factors, such as the provisions for handling coal and ashes, are not always carefully planned. Even in quite moderate sized plants, an installation of machinery for handling coal and ashes mechanically will usually materially reduce the operating labor costs and such apparatus should always be considered. An initial selection of the equipment and a good layout of the building is not sufficient, however, as conditions and practices which tend to reduce the efficiency of the plant easily creep in and frequently pass unnoticed for a long time. The only way in which results can be checked is by the keeping of suitable power plant records. These records, however, are of but little value unless they are placed in such shape that they can be and then are periodically analyzed. The prevention or reduction of wastes is and always will be a continuous fight.

At a time such as this, when the roads have a traffic which is taxing their facilities to the limit and when car shortages

#### Keep the Cars Out of Yards

and embargoes are appearing, every effort should be made to keep all available cars moving and thereby rendering the maximum service. When confronted with a similar situation in 1920 the roads increased the average movement per car per day from 23.1 miles in 1919 to 28.5 miles in October, 1920. This was equivalent to the addition of three-quarters of a million cars without any capital expenditure and without the added congestion which this large amount of equipment would have created. This increased speed may have been due in some slight measure to the faster movement of trains between terminals, although this is to be doubted. It was due in large part, if not entirely, to the reduction in delays in the terminals. The responsibility may perhaps be largely on shippers for delays in loading and unloading cars, but elsewhere in terminals the delays rest with the roads themselves, for the cars are exclusively under their control. In going through some yards one gains the impression that they are used for the storage rather than the classifying and forwarding of cars. Cases are not infrequent where the replacement of an obsolete, out-grown yard with one of ample proportions and modern design has been followed by a greater detention of cars simply because there was room for them, whereas the very inadequacy of the old facilities required the prompt forwarding of the traffic to get it out of the way of incoming



trains. The terminal is a necessary railway facility, but it should aid in the *movement* of traffic. By making up trains at the original terminal so that it will not be necessary to break them up in intermediate yards, time which would otherwise be required for this additional switching is saved and the movement of the cars is expedited by this amount. No single measure will contribute more to the more rapid movement of cars to destination than their classification for forwarding in trains in a manner which will reduce the amount of switching en route to the minimum. The "main-tracker" plan has much to commend it from the standpoint of increasing car movement, particularly at a time such as this, when this objective is so much to be desired.

An observer whose business it is to know as much as possible about the produce markets in New York has told us

#### Improving Train Service Morale

that morale in the train service is low. He makes this deduction from an increase in the number of breakages of eggs in transit which he has noticed lately and which he says always accompanies conditions which would tend to make train and yard men less interested in their work. Whether increased egg breakages can be taken to indicate low morale or not, however, it can readily be admitted that conditions are not so favorable that there is no room for improvement. Furthermore, any improvement which train service men may show in the interest they have in their jobs will have a decidedly favorable effect on the performance of the railroads in handling the heavy traffic of the next few months. It is gratifying, therefore, to notice that certain things are happening which should go far toward offsetting conditions provocative of discontent. One of these is the progress which is being made in the signing of contracts between railroads and the transportation brotherhoods extending present wages and working conditions for another year. The New York Central has gone a step farther and announced its intention to work out a plan under which premiums will be paid to train crews for expediting the movement of their trains. No railroad which is in a position to negotiate a wage contract with its train service employees at this time should delay action any longer than necessary. This, and any other similar step which can be taken now, will work to assist the railroads in handling the heavy traffic of the next few months.

Until automatic train control apparatus, now in the minds of everybody as a needed addition to the safety devices in use

#### The Engineman of the Lightning Express

on our high-speed railroads, can be installed, the duty of maintaining present safeguards continues as pressing as ever. This point, noticed in these columns on September 9, comes again to mind in connection with Chief W. P. Borland's report on the derailment at Winslow Junction, N. J., on July 2, which is noticed in this issue. This report discloses that Engineman Westcott very likely was asleep or dozing; as he omitted two or three whistle signals which customarily would be sounded in the circumstances under which he approached Winslow Junction, and did not apply brakes even when he entered the curve. With such a state of facts, an inquiry is needed as to how this engineman had spent the 13 hours that he was off duty just before starting on this run. The government report gives no light on this point. Without a stronger organization, the Bureau of Safety, very likely is unable to go very thoroughly into such a far-reaching investigation; but the need of it is plain. It will be recalled that this need was brought out on the occasions of the Ivanhoe and South Byron collisions.

At Ivanhoe (June, 1918) the engineman, 55 years old, had been without rest for 23 hours. At South Byron (January, 1919) the engineman appears to have been older than 55, and he had been without rest for 18 hours. Westcott, as well as Towerman DeWalt, had a clear record; but clear records do not clear up all doubts. For enginemen of midnight trains running at high speeds, the only satisfactory standard, now as in the past, is that they shall keep their bodies and brains fit, and their habits correct, throughout the 24 hours of every day. And the same is true of the fireman, if we are going to depend on him to corroborate the engineman's reading of signals at the entrance of every block. Instructing, regulating and checking the fireman is a duty often done very poorly, yet he is depended on, ostensibly, for important functions as a lookout man. And the reports of the recent collisions at Leeds, Alsuma and Lester (*Railway Age*, September 9) remind us that the fireman's monitorship is of extreme importance.

Railroad earnings in July with a net railway operating income of \$69,239,000, equal to a return on an annual basis

#### Earnings in July

of 4.04 per cent on property investment, fell short by a considerable margin—to be exact, \$29,332,800—of the 5¾ per cent return fixed by the Interstate Commerce Commission.

Considering, however, the rate reduction effective July 1, the absence of the better part of the coal traffic, and expenses incident to the shopmen's strike, the net for the month is rather better than was to have been expected. Looking ahead a week or two, it is safe to predict that the August earnings will not prove comparatively as favorable as were those for July. The expenses resulting from the strike, combined with the larger mechanical department payrolls due to an increasing proportion of normal shop forces at work, will unquestionably be reflected in the revenues and expenses figures. On the other hand, it will be very much a matter for surprise if the September earnings do not compensate for whatever poor results may be reported in August. The reason is, of course, the coal movement. Many of the coal carrying lines have increased their coal loadings from practically zero for the weeks during coal strike to figures for the weeks since the end of the strike much in excess for those reported for the corresponding weeks of last year. These carriers will show a sudden change in their figure of net income as will also, in only less degree, the carriers which receive coal from them at connections. This makes it extremely worth while to watch the results reported by the coal carriers in particular and it is to be expected that the September earnings reports will be awaited with considerably more interest than has been the case for those of any other month for some period. In view of this situation, on the other hand, the August results—while not being without a large amount of value from other points of view—will nevertheless tell a story that is already out of date a week or more before they begin to be published.

For over 20 years the marketing of steel rails in the United States has been governed by selling prices that have been

#### An Advance in the Price of Rails

established by fiat rather than the untrammelled operation of the law of supply and demand. For this reason, when any change is made in the established base price, such as the \$3 advance which goes into effect on October 1, the question arises as to the factors which govern such modifications. For the first eight years after the fixing of \$30 as the base price for open-hearth rails, the current

quotations of steel beams and plates averaged about 18 per cent higher than those for rails. During the next seven years, when plates and shapes were on a generally lower level, no adjustment was made in the price of rails, but during the period of fixed prices in 1918, 1919 and 1920, recognition was given to a differential between the prices for rails and those for shapes and plates in establishing prices for the latter that were definitely higher than those for rails. With the depression which followed the boom of 1920, quotations for structural materials fell from approximately \$70 a ton to about \$30 a ton early in the present year. In the meantime, two cuts in the base price for rails, reduced the latter from \$57 to \$40. The fact that rails have been quoted at considerably more than the structural material during the last 12 months has been taken as indicating the effect of price stabilization; that \$40 represented a base price which would not fluctuate while the quotations on other materials ranged above and below this. It now appears, that this assumption was not correct, for no sooner has the current price of structural material advanced so as to equal that for rails than the price for the latter is also advanced. This increase, however, will be purely nominal as regards those railroads which place orders within the next week for their requirements for the early part of 1923.

### Partial Settlement of the Shop Employees' Strike

TO THOSE who really know what is the railway situation as affected by the shop employees' strike there can be no doubt regarding the significance of the strike settlement which has been made by the labor leaders and by railways having between one-fourth and one-fifth of the mileage of the country. Whatever they may say, it is a confession by the labor leaders that the strike has been lost by the unions on most of the railways and that in the absence of some kind of settlement it would be lost in time on all the others. It is at the same time an admission by the railways signing the agreement that their situation is such that they can better afford to settle now and take all their striking employees back than refuse to make any settlement and fight the strike out to a finish.

The question of who has lost a strike can always easily be determined when it is ended by the concessions made by the combatants. What have the labor unions conceded in the settlement made in Chicago? First, they have agreed to put the strikers back at work under the very working conditions and wages fixed by the Railroad Labor Board against which they struck. Secondly, they have retreated from their position that they would not make any settlement with any railway or group of railways unless it was made nationally with all the railways. Third, they have given up the position that the strikers must be taken back with their seniority rights unimpaired. The men return to work with their relations to employees who stayed at work and to new employees left to future determination by a commission on which the railways and the labor unions signing the agreement will have equal representation.

The railways signing the agreement do not make a single concession which any individual railway in the country, excepting possibly the Pennsylvania, would not have been willing to have made at any time within several weeks after the strike began. The only concessions they make which any considerable number of railways have been unwilling to make at any time are, first, that they will take all the strikers back and give them the same kind of work at the same places as before the strike, and, secondly, that they will leave the question of seniority to future negotiations instead of explicitly requiring the strikers to return as new employees.

The leaders of the striking labor unions will ask all the other railways individually to sign the same agreement. If some, including a number of the largest systems of the country, consider it fair and expedient to sign it, why should not all? Because owing to differences in local conditions, in the past labor policies of different railway managements and in the way individual railways have been treated by their employees before and since the strike began, the situation on some railways is widely different from what it is on others. Some railways have virtually full forces of competent men and therefore have good reason for not settling with the strikers and no reason for doing so. Other railways which are not in an equally strong position have had chronic trouble in their shops for years because among the employees who struck there were radicals and agitators who took advantage of every opportunity to embroil the men with the managements and to render efficient operation of the shops difficult or impossible. The seniority rules have heretofore prevented these railways from getting rid of these men, but the strike has afforded an opportunity to do so which they do not intend to lose.

We have heard much criticism from business men who stand for the open shop and from some railway officers against the railway executives who negotiated and signed the terms of settlement adopted at Chicago. Such criticism is not inconsistent when made by men who are in favor of the pursuit by employers of an absolute anti-labor union policy. But the railway executives of the country through their various organizations repeatedly have repudiated the charge that they were trying to break up the labor unions and said that all they were opposing were the policies of the unions which tended to foster inefficiency and to interrupt transportation. Those railways which have actually won the strike, and those which are in a fair way to win it and which are confident that they can render the public as good or even better service now and in future by never settling with the strikers as by settling with them, are amply justified in refusing to settle with them. The strikers took their chances on the outcome of the strike and those who have lost by it cannot reasonably blame anybody for it but their leaders and themselves. On the other hand, railways whose situation is such that their managements believe that they can now and in future render the country as good or better service by settling with the strikers as by refusing to do so are amply justified in settling, provided of course, they faithfully live up to all the obligations they owe to men who have stayed at work or have gone to work during the strike. The terms of agreement adopted at Chicago recognize the obligation of the railways fully to protect employees who stayed at work and new employees who have entered the service since the strike began.

There certainly is room for difference of opinion as to which is the more expedient from the railway standpoint of two widely differing labor policies which always have had advocates among railway officers and which have been advocated with unprecedented energy since the shop employees' strike began. On the railways, as elsewhere, men who deal with labor may be roughly divided into two classes—those who are naturally antagonistic to labor unions and everything they stand for, who would prefer to have nothing to do with them and are willing to fight out every difference with them to a finish, and those on the other hand, who naturally favor labor organizations, who are always willing to negotiate with them and who would rather effect fairly satisfactory settlements with them at any stage of a controversy than engage in finish fights with them. Practically all the railway executives who have made the recent settlement belong to the latter class. Among the railway executives who have refused to participate in the recent settlement are not only those who are naturally hostile to labor organizations and their methods, but also many who on principle are friendly to the labor organizations but who for reasons



growing out of the strike do not feel they can afford to deal any longer with the shop crafts unions.

It will be well worth while to study the comparative results obtained on the railways which settle and on those that refuse to settle. Certainly past experience is that railways which have fought great strikes to a finish, won them and refused to make any settlements, have subsequently got better results from the work of their employees and been more favorably treated by them than railways which have shown a tendency to try to placate the labor unions. The railways which have most completely won the shopmen's strike are almost all of them railways such as the Pennsylvania, Illinois Central, Burlington, Union Pacific and Southern Pacific, which at one time or another have fought truculent labor unions to a finish and completely whipped them.

The principal argument that the railways have made in favor of negotiations and settlements of labor controversies between individual railways and their own men rather than on a national scale is that this would make it possible to adopt different policies and by carrying them out determine which were best for all concerned. That some railways have signed the Chicago agreement and that many will not sign it will have the beneficial effect of making it possible for different railways and their employees to adopt different methods of co-operating with each other and to test what methods actually secure the best results.

### "Our Road"

A RAILWAY EXECUTIVE has made this request: "You have had considerable to say in your editorial comments\* recently about the necessity for improving the relations between the employees and the managements of the railways. You have referred to the so-called personnel work in other industries. Won't you be a bit more specific and tell us definitely just what you think the railways should do to eliminate internal friction and misunderstandings and bring about as nearly as possible ideal conditions?"

The answer is not an easy one! Nor is it as simple as some would have us believe. In the first place, not one, but a great many things, must be done to bring about the desired result. These, however, will be useless if they are not done in the right spirit and actuated by the best motives. One reason why labor is so suspicious of capital and management is that some managements in the past, either through ignorance or design, have taken advantage of the employees under the guise of welfare work. Then, too, the term "welfare work" has become objectionable to employees and progressive managements alike because of the stigma attached to it in its earlier stages, due to the paternalistic spirit in which it was too frequently promoted. This was, and is, particularly objectionable to American workmen.

Possibly it will be easier to get the proper perspective if we attempt to visualize the objective of welfare or personnel work in a concrete way—"improving the relations with the employees" is a rather general and hazy statement. Is not the goal for which we should strive, the cultivation of such a spirit of respect and cordiality on the part of the employees that they will speak of the railroad as "our road"? What would not the accomplishment of this ideal mean to the peace of mind and development of the individual employees? What would it not mean in a greater interest in their work, in greater efficiency and production, in giving better and more efficient service to the public, in making a larger contribution to the prosperity of the communities served, and in stabilizing the prosperity of the nation as a whole?

We have seen recently, on a large scale, one effect of the

lack of this spirit. Can such conditions be allowed to continue? How far railway employees, in many cases, are from this ideal may be learned from listening to them talk matters over among themselves, or by studying the expressions of their brotherhood or union leaders, or through reading their union magazines.

One reason for the great gulf between employers and employees in these days is the tremendous size to which many companies have grown. It is not difficult for the small employer to keep close to his men and to arrive at satisfactory terms with them as to wages and working conditions. The larger a concern grows, however, the more difficult it is to preserve a sufficiently close contact to avoid serious misunderstandings. The tendency in the railroad field since the beginning of the period of federal control has been to intensify this difficulty by taking matters relating to wages and working rules out of the hands of the individual roads and putting them on a national basis. Obviously, and particularly when we take into consideration the widely varying conditions throughout the country, it is important that the individual roads should deal direct with their employees in all matters of this sort, if the right sort of contacts are to be made and preserved. How have other large industries handled this and other questions relating to the personnel? Possibly the railroad officer's question may be best answered by referring to what some of these industries have done.

So far as wages, hours of work and working conditions are concerned, some of the larger industries have placed the responsibility for this entire matter in the hands of a special officer or department reporting direct to the chief executive and having the full support of that executive and the board of directors. Such departments have been variously named, but fundamentally their duty is to study conditions and develop a constructive policy looking to the payment to the men of the best wages reasonably possible. The aim is to establish a length of working day which will not be detrimental to the health of the worker, and will give him a reasonable amount of leisure and yet maintain a low cost of production. Such a department, to function properly, must develop means whereby misunderstandings or grievances on the part of the employees will be brought to the attention of those in authority without delay and will be handled quickly. In many cases the best way of heading off the development of misunderstandings and grievances has been found to be through devising ways and means of keeping the employees informed as to problems confronting the industry and by removing "the mystery" from the business and taking the workers into confidence as to the actual facts. It is difficult enough to accomplish these things in a single plant. The problem of doing it on the railroads, with many departments and with the employees scattered over a vast territory, is far more difficult, but it is not impossible of accomplishment, and, as we have indicated in previous editorial comments, *it must be done*.

Closely allied with this problem of relieving friction by arranging for a channel whereby the management may keep intimately in touch with the needs and feelings of the workmen and promptly adjust difficulties, is the necessity for giving greater attention to the selection and training of men for supervisory positions. It has been found that many of the real grievances, and the most unnecessary ones, were caused by foremen or subordinate officers who were selected because of their skill as workmen, rather than for their ability to understand and control men. Almost invariably, therefore, after inaugurating a department such as suggested above, it has been found necessary to give the foremen special coaching or training in the art of handling men. In not a few instances some of the foremen have had to be replaced because of their inability to fit themselves for this larger task. Provision for promptly locating and following up the grievances, automatically discovers the men who are weak in this respect. The cause, rather than the effect,

\* See "The Next Step," August 19, p. 319; "Looking Ahead," August 26, p. 363; "One Way to Raise Wages," September 2, p. 407; "What Causes Inefficiency on the Railroads," September 9, p. 455; "Developing Machinery and Neglecting Men," September 16, p. 495.

should be treated, however, by taking immediate steps to provide special instructions and training for all of the foremen.

The problem of stability of employment has been tackled in a number of different ways by different industries. Much has been accomplished by careful study and planning of the work and the transfer of forces from one department to another as the demands fluctuate, due to seasonal or other causes. Special funds have been created in some cases to be used as unemployment insurance. Closely allied to the fear of losing his job, is the workman's fear of disability and helplessness in old age. This is being met by providing pension funds, relief funds and sick benefits. It is interesting to note that in many cases the men contribute a certain percentage to the pension fund, and if they leave the service are entitled to a cash consideration equaling the amount of money they have paid in. Group insurance is now being installed in many industries and on several railroads.

Special efforts have been made in some industries looking toward health conservation. The loss through inefficiency, due to poor health, which can be corrected in most cases, is very considerable in some industries and this has resulted in the development of medical and dental departments which have been a great boon to the employees, and have paid for themselves in the increased efficiency of the employees, and in the reduction of absences from work, which interfere seriously with the work schedules and hamper production. Industries which have conducted safety first campaigns as actively as have some of the railroads, have also given an equal amount of attention to this matter of health conservation, with splendid results.

The question of working conditions has been overlooked to a large extent on the railroads and in many industries. Poor light and ventilation and unsatisfactory environment put the brakes on efficiency. The question of properly equipped lavatories and locker rooms and other conveniences which make for efficiency is also important.

Some companies have assisted the employees by encouraging them to save and by advising them in making sound investments. In not a few instances employees have been encouraged to buy the stock or bonds of the companies by which they are employed. The employees have in many cases greatly appreciated company aid in financing the purchase of property and the building of homes. Some industries have been most helpful to their employees in promoting certain kinds of co-operative buying.

The mechanical departments of American railroads have given more or less attention to the education of shop apprentices. Unfortunately, however, only a few of the roads have adopted the best practices and the most modern methods. The whole question of providing adequate training for those entering other classes of work in all departments and of training the men for promotion has been largely neglected. Other industries have done much more in this respect, even to the extent of arranging for the education and training of men already employed and who may even have been rated as skilled workers. Certain conditions which may have been inherited from federal control and which need not be reviewed here, make it imperative that the railroads should give this whole question of education and training of employees more intelligent attention.

The promotion of schemes for recreation has met with a good reaction in many places. This includes athletic programs, social clubs, reading and literary clubs, etc.

Most industries have given far more attention to the employment problem than have the railroads, which are among the largest employers. Properly organized employment departments not only examine the men carefully as to their experience and skill, but have them passed upon by the medical department. If accepted, special pains are taken to see that they are introduced to their new work in such a way as to make a good impression at the very start. Their

work is carefully followed up, in many instances to such an extent as to insure that men who are unfitted for the class of service to which they have been assigned may be transferred until they find their proper place in the organization.

No reference has been made to profit sharing plans because these are largely in an experimental stage and there is also a question as to whether they are applicable to a public utility. There are, however, better ways of paying men in proportion to their skill and output than are now used by the railroads. Seniority, of course, makes it more difficult to recognize individual initiative. Piecework, banished from the railroads for a while, when properly installed and maintained, has many advantages for both the men and the managements on some classes of work. It will be interesting to follow the result of the graduated wage scales now being introduced in the mechanical department by some roads. Bonuses for practical ideas and suggestions have been found to be productive of good results in many industries.

The above touch in a rough way upon some of the noteworthy things that have been done by the industries to improve the relations with the employees. The inference is not that the railroads have not done any of these things or that some of them may not have done many of them. It is a fact, nevertheless, that the railroads have not been nearly as active in these respects as they should have been.

One thing is vital in solving the human relations problem in a big way, and that is, that a policy must be adopted which is not subject to the whims or peculiarities of any one individual officer and that the employees understand this. A permanent policy must be adopted and supported by the board of directors. And why not? Is there any greater problem confronting American railroads today?

## The Shopmen's Strike— A Series of Blunders

EXPERIENCE is the best teacher. Some people welcome its lessons when it shows they have been right but reject its lessons when it shows they have been wrong. Progress is due to those who are willing to learn from experience, as well as other teachers, even when the teachers show they have been wrong.

The shopmen's strike, which has now been settled on some railways, has afforded an experience which should teach some most important and valuable lessons to railway managers, railway labor leaders and railway employees. The future experience of the railways which have settled and are taking the strikers back and those which have not settled will afford some additional lessons.

The strike has been terribly costly to the railways, the strikers and the public. The issuance of the original order for it and its continuance so long have been due to a series of big blunders. But all the blunders have not been committed by the labor leaders and the members of the unions. Every party concerned has blundered. Some things which when done seemed obviously wise and beneficial to those who did them now appear in an entirely different light.

One of the worst blunders of the series that has caused and protracted the strike was that made by the railways which adopted the policy of contracting out work which it had been customary to do themselves. They saved money by it for a time, and it seemed to their managers wise and proper. It was done by only a small part of the railways but it has had important consequences for all of them. It exasperated and alarmed labor leaders and employees to an extent that few people realized until recently. The labor leaders and the employees feared that the system of contracting would be extended to all the railways of the country,



with the result of breaking down all the working conditions and wages favorable to labor that had been approved by the Labor Board. There is no doubt now that the policy of contracting out work contributed largely toward causing the strike. In addition it gave the labor leaders a pretext for charging that the railways had violated, or at least evaded, the law and the decisions of the board on a wholesale scale, and for using this charge in defense of the employees' action in striking against the decisions of the Labor Board. It is wholly inconsistent for spokesmen of the railways to denounce employees for striking against decisions of the Labor Board when railways themselves are doing virtually the same thing.

The next blunder was committed by the labor leaders when they issued the strike order. They knew they could get rehearings by the Labor Board in the wage cases at any time. They should have known that public sentiment and the sentiment of many members of their own organizations would be against a strike which was in defiance of decisions of the Labor Board that had been reached after full hearing of all the matters in controversy.

The next blunder was made by the Labor Board in immediately issuing statements that the strikers had sacrificed their seniority rights, and by many railways in issuing notices that unless the strikers returned to work within a very few days their seniority rights would be forfeited. These announcements and ultimatums immediately became a bar to an early settlement of the strike. It was unreasonable to expect that men who had struck would return to work within a few days. Some roads which gave the strikers two weeks, or even more, within which to return to work got back many of their men before the time limit expired. If the seniority issue had not arisen as a result of so many railways prematurely depriving the strikers of opportunity to return to work with their rights unimpaired the strike would have been ended within three weeks.

The next blunder was made by President Harding when, after the strike had been going on for some time, he proposed that it should be terminated by the railways taking the strikers back with their seniority rights unimpaired. This encouraged the strikers to stay out in the hope that a settlement finally would be made which would restore their seniority rights after the railways had committed themselves so far to the men at work that they could not honorably or with any regard for future consequences take the strikers back with their seniority rights.

The result of these and other blunders has been a strike which lasted ten weeks on the railways which have settled, which is still continuing on most of the railways, which has cost employees, railways and the public hundreds of millions of dollars and the effects of which will cost hundreds of millions in future. It has had and will have some good effects. It has broken down the plan of national negotiations and settlements by which the labor unions had imposed uniform working conditions and wages on all the railways, and by which they were determined to maintain them. It has disillusioned many thousands of railway employees who had been led to believe that the railways could not or would not long resist a nation wide strike and that they had more to gain by striking than by accepting the decisions of the Railroad Labor Board. But the net result is to demonstrate what every sane man should have conceded before it occurred—namely, that the railways and their employees have more to gain by dealing with each other fairly and reasonably and by accepting and carrying out decisions of the Railroad Labor Board regarding controversies that they cannot settle themselves than they have to gain by fighting their differences out in strikes.

A strike, like a war, is a game in which usually everybody concerned loses. What the shop employees and the public have lost is fairly obvious. Even railways which have won the strike have suffered losses which they will feel for

years. The strike should cause the leaders in the railway field, in the labor field and in public life to join in good faith in an effort to devise and carry out measures which will prevent similar struggles in future. This is what would be done if the wishes and counsel of the moderate men of all interests should prevail. Unfortunately the extremists connected with the various interests are as influential as the moderate men, and labor leaders whose real goal is the destruction of private ownership, railway leaders whose real desire is the destruction of labor unions and politicians whose sole object is the promotion of their own selfish ambitions will exert as much influence on the final outcome as the moderate men.

## Would the Public Pay the Bill?

IN RECENT PUBLIC discussions of the coal mining industry the over-development of bituminous mine capacity has frequently been referred to as one of the most difficult conditions with which the industry is confronted, both as it affects labor conditions within the industry and its relations with the public. It has an equally important bearing on the development of railroad capacity. This is brought out clearly in an article on another page, describing the effect of the coal strike on the coal movement from the eastern Kentucky fields over the Louisville and Nashville. In enlarging its capacity to serve these fields this railroad has spent within the last 20 years an amount equal to approximately 15 per cent of its total investment in physical property. Almost one-quarter of this amount has been spent since the termination of Federal control and it has all been applied to a part of the system aggregating not more than 18 per cent of the total system mileage. But notwithstanding this intensive development the mines served by the railroad in this territory, working full time, can probably produce more than twice as much coal as the railroads can move away from the mines. This situation may be considered fairly typical of the relation between railroad and mine capacity throughout the bituminous coal fields.

The fact that the country's fuel supply has always been moved, indicates that the capacity of the railroads cannot be very far behind the actual requirements of the market. But, with the coal-mining industry organized on a basis of low average production with high peak loads, caused by disturbances such as the recent coal strike, the capacity of the railroads becomes the limiting factor and the roads are subjected to much loose criticism for their inability to supply cars up to the full loading capacity of the mines. The apparent car shortage, however, is not primarily a lack of sufficient cars. It is a lack of main tracks, of passing tracks, of block signals, of yards and of engine terminal facilities, without which additional cars and motive power are useless.

From 25 to 30 per cent of the tonnage moved on the railroads of the United States is bituminous coal and if the railroads are to meet the peak load demands caused by the unstable and erratic operating conditions within the bituminous mining industry, they must provide facilities great enough to move the nation's annual coal supply in a few months of the year. But to provide facilities on such a scale would involve a tremendous investment which would be fully utilized for short periods only. It is obvious that under a policy of public regulation which limits the return on investment in railway property to the lowest point short of confiscation no such increase of railway facilities is possible. But even if it were possible, would the public be willing to pay the price of such a tremendous increase of railroad facilities in the form of increased rates? Unless this question can be answered in the affirmative, adverse criticism of the railroads because of car shortages when the surplus mine capacity of the country is suddenly brought into production is not only unjust, but futile.

## Letters to the Editor

*[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

### A Well Deserved Tribute

NEW YORK.

TO THE EDITOR:

The railroad shopmen's national strike of July 1, 1922, will go down in history as unique in three particular respects, i.e., first, the large percentage of shopmen who left their work; second, the relatively small interference caused thereby in the movement of the railroad traffic of the country during the ensuing two months; and third, the loyal support and co-operation of the supervising officers and employees who performed the work of the strikers in order to provide the public, including the strikers, with food, milk, fuel and other necessities.

The railroad mechanical department heads and supervising forces deserve particular commendation and recognition. No jobs have been too difficult or arduous for them to undertake and perform in order to keep locomotives and cars moving. The sterling and seasoned qualities of these men, and the maintenance in safe operating condition of the motive power and equipment under their care, have been put to a most severe test and they have made good. Too much consideration cannot now be given, by the railroad executives, to those of these officers who are deserving of increased remuneration, authority and advancement, for the purpose of retaining in the railroad service true and tried men who otherwise will continue, as during the past ten years, to enter industrial and commercial fields where opportunities for promotion and increased earning capacity have been much more attractive.

JOHN E. MUHLFELD.

### Instructing and Pleasing the Public

CLEVELAND, Ohio.

TO THE EDITOR:

People do not realize the bigness of a railroad. It is important to explain the magnitude of our railroad system frequently and in varied ways, so that the facts will penetrate the resisting mind. For example, the New York Central's advertisement telling how it has the power to move a long freight train around the world in one day—who had ever thought of that? A person who goes to Europe on the *Mauretania* gets some idea of what the steamship company has to do to give him such gorgeous comfort and marvelous speed; but the traveler on the New York Central has only a dim idea of how many cars—how many tons of steel—have to be hauled over the road to give him the regularity of facilities and the comfort which are furnished to him so cheaply.

I have just read the Illinois Central's manifesto, in the St. Louis Globe Democrat. The president of that road says: "We are constantly seeking to promote good-will among our patrons. We are attempting to render a dependable, efficient transportation service, by having officers and employees who are at all times courteous and obliging. It is our hope that the Illinois Central System will always stand

in the front rank of the railroads of this country in having the good-will of its patrons."

How many readers of that statement can begin to understand the task thus implied? The average reader, if he should hear that President Markham received 50 letters in one day complaining of incivility on the part of station agents, clerks, conductors, brakemen and others would declare the advertisement a fraud—a lie. And yet that number, 50, probably would not equal one in 500 or one in 1,000 of cases wherein an employee might forget his manners. The Illinois Central, according to the Official Guide, has about 1,000 stations where passengers can ask foolish questions every day, and many times a day.

Another thing that passengers at ticket offices and patrons of freight stations should remember is that a railroad must seek efficiency first. A store clerk is uniformly polite—"courtesy first"—but he frequently gives you poor service. The railroad man must do his work safely and honestly, even if he should occasionally lose his temper.

President Markham invites constructive criticism. I venture to suggest (assuming that his road is not far above the average of the big roads) that he invite his trainmen and the agents and clerks at the smaller stations to constructively criticize themselves by constructing a few sentences (in good English) every day. One of the most common faults of these people is silence. If a question is the least bit difficult, they evade the issue; they remain dumb. I do not mean vital questions; they will tell you enough so you won't get left, and they don't mean to let you run in front of a moving locomotive; but there are many other things on which such servants of the public ought to do a little thinking now and then. For example, I rode, the other day, in a very old coach; and in a semi-jocular manner I asked the young and rather green conductor where he found that car. Apparently no such irregular question ever confronted him before; and instead of grasping the opportunity to explain the company's expenditures and efforts to provide steel cars, and how a rush had compelled the use of the ancient buggy on this occasion, he only grinned. He was an intelligent fellow, however, and probably within a half hour recovered sufficiently to see that he ought to have said something. Another conductor comes to my mind; one not old nor specially smart looking, who patiently took three minutes to explain to a passenger, as clearly as President Harding could have done it, some of the whys and wherefores of government regulation of railroads. That conductor reads something besides the sporting pages and the local news. And he did not explain every unpleasant feature of the service as being required by "the orders of the Interstate Commerce Commission."

Having "knocked" the store clerks, I want to give them a good word. I advise all railroad men to watch them closely. The competent retail salesman, at the end of his first year, can give the average railroad man a hundred points on pleasing the public, which the said railroad man seems to try in every way to avoid.

No superintendent, I suppose, will send groups of his men to the department stores to take the courses of instruction which I am here suggesting, and so I will propose an easier measure: require every passenger brakeman to write down, and report, each week, what questions are asked of him by passengers. Do not require him to report what answers he has made. This will afford a chance to compare brakemen in a new way. After the first week, the most frequent questions, those which can be answered easily, can be omitted.

Anything to get trainmen to think! Do we stop to reflect how much idle time the brakeman has every day? Idleness tends to promote sloth; yet we call upon these men to be mentally alert.

OBERLIN.





Erie Train Order Signals

# Train Orders by Signal Indications

Trains on Single or Double Track Can Be Operated by Signals  
Without the Use of Written Orders

By A. R. Fugina

Signal Engineer, Louisville & Nashville, Louisville, Ky.

**I**S IT POSSIBLE and profitable to operate trains by signal indications instead of by written orders? It undoubtedly is. Then why are the railroads so slow to adopt this more efficient method of operation? Wm. Nichols

said in his treatise on train operation which was published in 1916, that "with a proper block signal system, the signals to govern train movements into and out of sidings, trains may be moved safely on single track without train orders and with but few train rules." It is our purpose in this paper to show that it is feasible and advisable to operate trains in this manner.

The problem is relatively simple for double track movements and many railroads are now operating such divisions more or less completely under signal indications. The best example of this method of operation is that in use between Port Jervis, N. Y., and Chicago on the Erie, a distance of approximately 900 miles. The system has been employed on this road for many years and has been found to be a great improvement over the old method of using written train orders to convey information. Several years ago the writer and one of our division superintendents made a careful investigation of the operation on the Susquehanna division of the Erie, spending a number of days on it interviewing local officers, visiting dispatchers' offices and riding various classes of freight and passenger trains. The operation was found to be smooth and every one concerned was favorable to it with the possible exception of the train dispatchers who did not like to assume the additional responsibility of directing all of the train movements in spite of the fact that their work was made more easy.

To make effective the Erie method of train operation by signal indication the line of road is equipped with one-arm automatic signals of the three-position upper quadrant type. Where train order signals are required, they are placed on the automatic signal mast below the automatic signal. The train order signals are one-arm, three-position electric sig-

nals. They are located at passing sidings or crossovers and are controlled from the nearest day and night train order office. The dispatcher directs their operation by telephone instructions to the office controlling them. One operator usually controls the train order signals at the point where he is located, as well as at either one or both adjacent sidings, this being possible because they are electrically controlled.

## Train Order Signal Indications

The upper arm of the signal is the automatic signal and it controls the movement through the block in the usual way. The lower arm or train order signal indicates as follows:

### HORIZONTAL (RED LIGHT)

Stop on main track and consult dispatcher on telephone.

### DIAGONAL (YELLOW LIGHT)

Take siding and consult dispatcher on telephone when clear of main track.

Passenger trains will report before pulling into siding.

### VERTICAL (GREEN LIGHT)

(1) Proceed regardless of following preferred trains until otherwise directed by dispatcher.

(2) Trains are forbidden to accept this indication if there is any known cause that will prevent their making their usual running time. In such event they will consult immediately with dispatcher by telephone. When a train accepts the "proceed" indication and for any cause is unable to make its usual running time, it must protect itself against the following preferred train according to Rule 99, operating department.

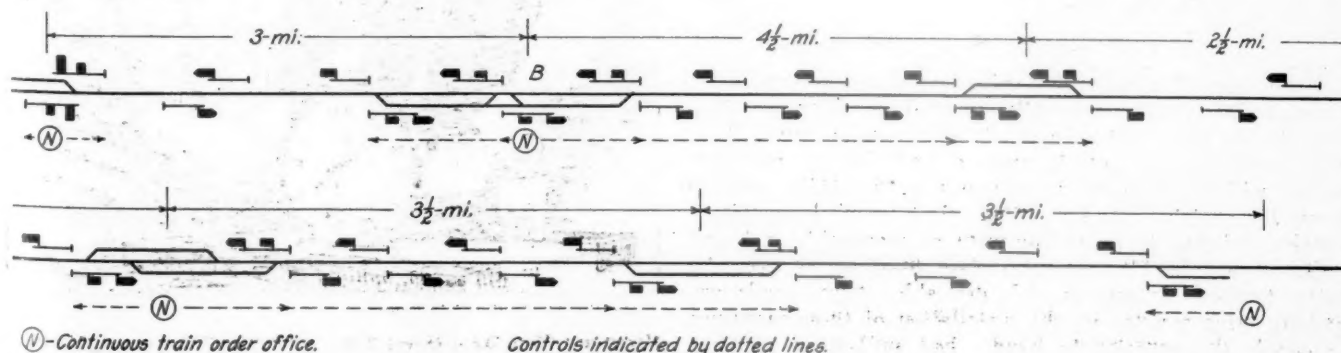
When the train order signal displays "stop" or "take siding" the automatic signal displays "stop."

Under this system a freight train, whether local or through, holds the main track on the time of any passenger train until directed by the dispatcher to take siding through means of the train order signal.

## Single Track Operation

Our thorough investigation of the Erie system convinced us of the desirability of this method of operation for double track movements and also that a similar scheme can be developed for use on single track. We submit the following method for operating on single track.

The diagram represents a typical single track railroad equipped with automatic signals of the absolute permissive type and electric train order signals arranged to be controlled

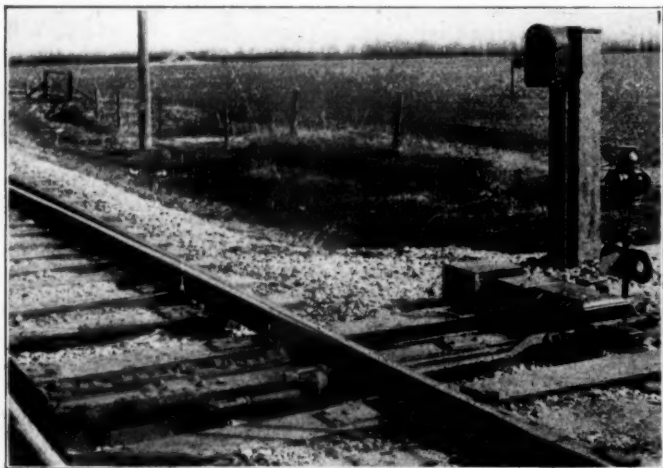


How Trains May be Operated on Single Track Without Written Orders

by the operator to convey orders to trains at the direction of dispatcher.

All entering signals at passing tracks are to be equipped with a second arm, this arm to be a three-position electrically-controlled train order signal. The train order signals and the leaving automatic signals will be under the control of the operator. The leaving signal is a positive signal and by placing it under the control of the operator a train may be stopped by it if desired. The indications of the train order signals will be the same as used by the Erie as previously explained. Thus the operator is enabled to inform the train to proceed, take siding; stop at the entrance of the siding and get into telephone communication with the dispatcher, or to proceed on the main track to the clearance point at the leaving end of the siding.

When there is a double siding such as at B, in the sketch,



Outlying Switch Operated by Low-Voltage Machine

additional train order signals may be located between the switches of the sidings. The addition of these signals will enable the operator to instruct the train to enter either of the two sidings. A similar arrangement may be used at lap sidings if thought desirable. However, this should not generally be necessary if each siding is used only by trains in a certain defined direction.

The proposed plan of operation includes a train-announcing scheme which may consist of a separate small light, similar to lights used on telephone exchange boards, to represent a direction of traffic for each positive block, the light to indicate when the block is occupied. For example, on a northbound movement, the northbound light would indicate as soon as a train passed the leaving signal at the next station to the south, and the southbound light for this block would indicate from the time that the southbound train left the leaving end of the siding until it had cleared at the next station. The lights would continue to indicate until the train cleared the block.

#### The Use of Electric Switch Machines

Train operation may be further expedited by equipping siding switches with electrically-operated switch mechanisms and placing their control in the hands of the operator. This will enable the operator to move a train into or out of a siding without stopping it or requiring the train crew to throw the switch. The low-voltage electric switch movement enables switches to be so equipped at reasonable cost and switches may be fitted up at certain locations or over the entire territory as may be felt desirable. Some roads are making large savings by the installation of these machines to enable the operator to handle bad pull-in or pull-out switches for trains, and yet the roads generally have been

very slow in adopting this time and money-saving device, the efficiency of which has been proved many times.

Each train should be provided with a portable telephone train set in order to enable it to get into communication with the dispatcher if it should be unduly delayed between stations or at other points not near a telephone location.

Operation under this system will, of course, call for quite a departure from the Standard Code operating rules, making a revision or separate set of operating rules or instructions necessary.

The cost of providing the additional facilities necessary for train operation by signal indication where automatic signals are already installed, is not very great and the operating advantages that will be obtained will far outweigh the cost of installation as the economies made in operation would pay for the expenditures within a very short time. I am satisfied that when systems of this kind are installed they will prove as safe, economical and desirable as automatic signal systems.

Railroads have been slow to avail themselves of the full benefits offered by signal systems. As an example, the "19" order for restricting the rights of trains represents one of the greatest advantages of an automatic signal system, and yet it required years of missionary work to induce any road to adopt this economical method of operation, and many roads still refuse to do so.

Since the railroads are so slow in availing themselves of the use of the "19" order for restricting rights of trains in automatic signal territory, or in using electrically-operated passing siding switches, it is not strange that they are failing to eliminate written train orders and substitute therefor the signal indication method of conveying orders. And yet this will be brought about sooner or later.



From the St. Louis Globe-Democrat

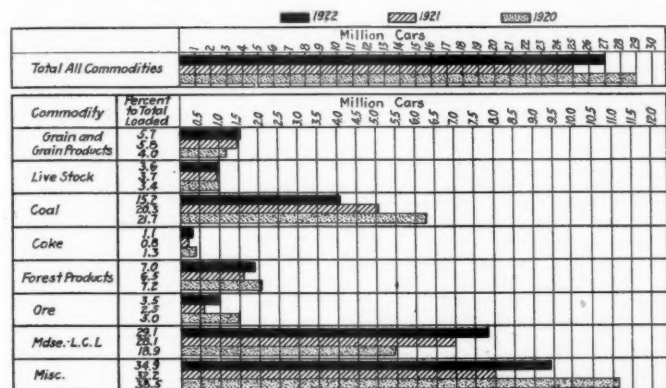
Wouldn't This Be a Good Time to Try and Invent a Different Kind of Clock?



## Freight Car Loading

WASHINGTON, D. C.

THE NUMBER of cars loaded with revenue freight during the week ending September 9 was 832,744, an increase of 83,192 as compared with the corresponding week of 1921, but a decrease of 50,671 as compared with the corresponding week of the record year 1920. The decrease of nearly 100,000 as compared with the preceding week is



Cars of Revenue Freight Loaded—Cumulative January 1 to August 26

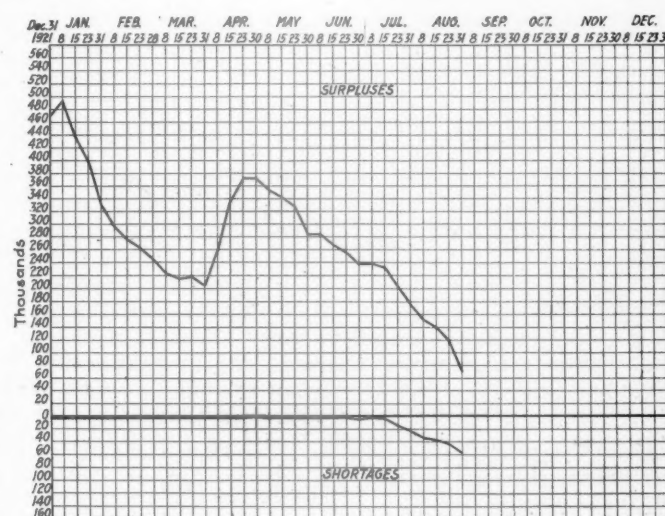
attributable to the Labor Day holiday. Increases as compared with the corresponding week of last year were shown in all districts except the Pocahontas and in all classes of commodities except grain and grain products and coal. Revenue coal loaded amounted to 139,570 cars, a decrease of 2,578 as compared with the year before and a decrease of approximately 10,000 as compared with the previous week, which contained no holiday. The summary as compiled by the Car Service Division of the A. R. A. is given in the table at the bottom of the page.

A total of 195,142 cars were loaded with coal during the week which ended on September 16, according to reports received from the railroads by the Association of Railway Executives. Of this total, 175,326 cars were loaded with bituminous coal, an increase of 17,316 cars over the week before, when, however, there was a falling off in coal loadings due to the observance of Labor Day. The remaining 19,816 cars were loaded with anthracite coal during the

past week, which was the first week of production since the recent agreement was reached.

On the basis of these loadings, coal production last week approximated 10,633,000 tons, of which 9,650,000 tons consisted of bituminous coal and 983,000 tons were anthracite coal. A total of 5,088 cars were loaded with anthracite coal on Saturday, September 16, the largest number for any one day since operations were resumed in the anthracite fields, and 384 cars in excess of the preceding day. This was within 363 cars of the average daily loading in September last year.

Loadings of bituminous coal on Saturday amounted to 25,073 cars, 2,798 cars below the preceding day. Coal loadings in the bituminous fields, however, always show a de-



Car Surpluses and Shortages Up to August 31, 1922

crease on Saturday compared with other days in the week. These figures include both revenue and non-revenue loading.

An accompanying chart presents an analysis of revenue freight loaded for the period January 1 to August 26 inclusive for the past three years. It will be noted that the total of all commodities shows about two million cars less loaded to date this year than in 1920 and about the same number of cars increase over 1921; furthermore, that the loss in loading this year compared with 1920 is due entirely to

### REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, SEPTEMBER 9, 1922

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mds. L. C. L.	Miscellaneous	Total revenue freight loaded		
										This year 1922	Corresponding year 1921	Corresponding year 1920
Eastern	1922	7,107	2,532	29,960	1,321	5,469	6,095	56,244	86,115	194,843	178,847	203,248
	1921	7,597	2,361	37,641	1,277	3,914	2,291	53,443	70,323	184,186	146,332	185,812
Allegheny	1922	3,024	2,814	44,505	4,493	2,921	8,698	44,566	73,165	25,122	27,228	35,968
	1921	3,108	2,465	39,195	2,102	2,217	5,178	41,563	50,504	110,018	106,276	124,378
Pocahontas	1922	175	330	16,904	139	1,003	29	4,181	2,361	137,028	117,368	154,138
	1921	247	296	16,669	103	975	78	4,946	3,914	124,110	116,233	117,498
Southern	1922	3,667	2,600	19,606	872	16,469	867	32,455	33,482	57,437	57,268	62,373
	1921	3,537	1,758	19,984	328	13,613	243	34,932	31,881	318,575	290,869	334,009
Northwestern	1922	17,016	7,517	6,262	1,003	13,284	35,654	24,656	31,636	832,744	749,552	883,415
	1921	18,226	6,488	8,381	497	9,987	18,298	24,661	30,830	298,107	298,107	298,107
Central Western	1922	12,718	10,987	15,448	440	6,931	2,109	27,985	47,492	252,546	252,546	252,546
	1921	17,253	8,572	16,223	150	5,367	667	27,539	40,462	300,980	300,980	300,980
Southwestern	1922	4,025	2,732	6,885	150	5,829	381	13,579	23,856	83,192	83,192	83,192
	1921	4,996	2,760	4,055	175	5,723	864	14,063	24,632	25,122	25,122	25,122
Total Western Districts	1922	33,759	21,236	28,595	1,593	26,044	38,144	66,220	102,984	318,575	290,869	334,009
	1921	40,475	17,820	28,659	822	21,077	19,829	66,263	95,924	832,744	749,552	883,415
Total, all roads	1922	47,732	29,512	139,570	8,418	51,906	53,833	203,666	298,107	832,744	749,552	883,415
	1921	54,964	24,700	142,148	4,652	41,796	27,619	201,147	252,546	832,744	749,552	883,415
	1920	58,997	27,285	179,746	16,327	58,148	75,444	186,488	300,980	832,744	749,552	883,415
Increase compared	1921	4,812	4,812	3,786	10,110	26,214	2,519	45,561	83,192	83,192	83,192	83,192
Decrease compared	1920	7,232	2,578	3,786	10,110	26,214	2,519	45,561	83,192	83,192	83,192	83,192
Increase compared	1920	8,735	2,227	49,176	7,909	6,242	21,511	17,178	2,873	50,671	50,671	50,671
Decrease compared	1920	47,732	29,512	139,570	8,418	51,906	53,833	203,666	298,107	832,744	749,552	883,415
September 9	1922	54,019	31,847	149,487	8,389	58,706	62,354	233,550	333,246	931,598	833,288	961,633
September 2	1922	54,562	32,046	111,030	8,390	60,466	65,041	230,000	329,303	890,838	828,883	1,001,308
August 26	1922	55,893	29,756	81,959	8,201	57,934	67,201	229,925	325,350	856,219	815,147	968,103
August 19	1922	57,567	28,370	84,559	8,420	56,163	68,197	230,632	317,652	852,580	808,269	971,269

the decrease in total coal loading, so that as an aggregate all other commodities show an increase over both 1920 and 1921.

It is particularly interesting to note that in spite of the fact that the year 1921 as a whole witnessed the heaviest grain and grain products loading on record, the current year to date shows slightly greater total loading of this commodity. Live stock, coke and forest products show an increase over last year to date and correspond favorably with 1920. Coal naturally shows a considerable decrease compared with the two previous years, and ore shows a decrease over 1920 but an increase over 1921. Merchandise (LCL) shows a marked increase over both of the two previous years; miscellaneous freight shows an increase over 1921 and a decrease in the aggregate compared with 1920. The total of these two items, however, would show an aggregate increase over both of the two previous years.

Except for two days in last March and one other day in 1921, more cars were loaded with bituminous coal on Monday, September 18, than on any day during the past 2½ years. The total was 37,330 cars.

## Coal Priority Bill Passed

WASHINGTON, D. C.

THE CONFERENCE report on the Cummins-Winslow bills to restrain profiteering in coal by authorizing the Interstate Commerce Commission to order priority in favor of coal sold at a fair price or embargoes against coal for which an unreasonable price has been charged or paid at the mines, was adopted by the House on September 15 by a vote of 228 to 70 and by the Senate on September 16 by a vote of 37 to 12. The report represents a combination of the principles and phraseology of the two bills, the principal change being the adoption of the Senate provision making it apply solely to interstate commerce, and a change in the period to one year. The main provisions of the bill as rewritten by the conferees are as follows:

"That by reason of the prolonged interruption in the operation of a substantial part of the coal-mining industry in the United States and of the impairment in the service of certain carriers engaged in commerce between the States and by reason of the disturbance in economic and industrial conditions caused by the World War a national emergency exists which endangers the public health and general welfare of the people of the United States, injures industry and business generally throughout the United States, furnishes an opportunity for the disposition of coal and other fuel at unreasonably high prices, limits the supply of heat, light, and power, threatens to obstruct and hamper the operation of the Government of the United States and of its several departments, the transportation of the mails, the operation and efficiency of the Army and the Navy, and the operation of carriers engaged in commerce among the several States and with foreign countries.

"Sec. 2. That the powers of the Interstate Commerce Commission \* \* \* are during the aforesaid emergency, enlarged to include the authority to issue in transportation of coal or other fuel orders for priorities in car service, embargoes, and other suitable measures in favor of or against any carrier, including vessels suitable for transportation of coal on the inland waters of the United States which for such purpose shall be subject to the interstate commerce act, or region, municipality, community, person, copartnership, or corporation, and to take any other necessary and appropriate steps for the priority in transportation and for the equitable distribution of coal or other fuel so as best to meet the emergency and to promote the general welfare, and to prevent upon the part of any person, partnership, association, or corporation the purchase or sale of coal or other fuel at prices unjustly or unreasonably high. This act shall not be construed as repealing any of the powers heretofore granted by law to the Interstate Commerce Commission, but shall be construed as conferring supplementary and additional powers to said commission and as an amendment to section 1 of the interstate commerce act, and subject to the limitations and definitions of commerce controlled by said act, and all powers given said Interstate Commerce Commission shall be applicable in the execution of this act.

"Sec. 3. Because of such emergency and to assure an adequate supply and an equitable distribution of coal and other fuel, and to facilitate the movement thereof between the several States and with foreign countries, to supply the Army and Navy, the Government of the United States and its several departments, and carriers engaged in interstate commerce with the same during such emergency, and for other purposes, and for the further purpose of assisting in carrying into effect the orders of the Interstate Commerce Commission made under existing law or under section 2 hereof there is hereby created and established an agency of the United States to be known as Federal fuel distributor, whose appointment shall

be made and compensation fixed by the President of the United States. Said distributor shall perform his duties under the direction of the President.

"Sec. 4. It shall be the duty of the Federal fuel distributor to ascertain:

"(a) Whether there exists within the United States or any part thereof a shortage of coal or other fuel and the extent of such shortage;

"(b) The fields of production of coal and other fuel and the principal markets to which such production is or may be transported and distributed and the means and methods of distribution;

"(c) The prices normally and usually charged for such coal and other fuel and whether current prices considering the costs of production and distribution, are just and reasonable; and

"(d) The nature and location of the consumers, and what persons, partnerships, corporations, regions, municipalities, or communities should under the acts to regulate commerce administered by the Interstate Commerce Commission, including the transportation act, 1920, in time of shortage of coal and other fuel, or the transportation thereof, receive priority in transportation and distribution, and the degree thereof, and any other facts relating to the production, transportation, and distribution of coal and other fuel; and when so ascertained the Federal fuel distributor shall make appropriate recommendations pertaining thereto to the Interstate Commerce Commission from time to time, either on his own motion or upon request of the commission, to the end that an equitable distribution of coal and other fuel may be secured, so as best to meet the emergency and promote the general welfare. All facts and data within the possession of the Federal fuel distributor shall be at all times accessible and furnished to the Interstate Commerce Commission upon its request. The Interstate Commerce Commission is hereby authorized and directed to receive and consider the recommendation of the Federal fuel distributor, based upon his reports upon the foregoing subjects, and any other information which it may secure in any manner authorized by law.

"Sec. 5. The Federal fuel distributor may make such rules, regulations, and orders as he may deem necessary to carry out the duties imposed upon him by this act, and may co-operate with any department or agency of the Government, any State, Territory, district, or possession, or department, agency, or political subdivision thereof, or any person or persons, and may avail himself of the advice and assistance of any department, commission, or board of the Government, and may appoint or create any agent or agency to facilitate the power and authority herein conferred upon him; and he shall have the power to appoint, remove, and fix the compensation of such assistants and employees, not in conflict with existing laws, and make such expenditures for rent, printing, telegrams, telephones, furniture, stationery, office equipment, travel, and other operating expenses as shall be necessary for the due and effective administration of this act. All facts, data, and records relating to the production, supply, distribution, and transportation of coal and other fuel in the possession of any commission, board, agency, or department of the Government shall at all times be available to the Federal fuel distributor and the Interstate Commerce Commission, and the person having custody of such facts, data, and records shall furnish the same promptly to the Federal fuel distributor or his duly authorized agent or to the commission on request therefor.

"Sec. 6. That whenever the President shall be of the opinion that the national emergency hereby declared has passed he shall by proclamation declare the same, and thereupon, except as to prosecutions for offenses, this act shall no longer be in force or effect, and in no event shall it continue in force and effect for longer than 12 months from the passage thereof.

"Sec. 7. Every person or corporation who shall knowingly make any false representation to the Interstate Commerce Commission or the Federal Fuel Distributor or to any person acting in their behalf or the behalf of either of them respecting the price at which coal or other fuel has been, is being, or is to be, sold or bought, the inquiry being made for the purposes of this act, or whoever having obtained coal or other fuel through a priority order or direction shall dispose of the same for purposes other than those for which said priority order or direction was issued without the consent of the Interstate Commerce Commission, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than \$1,000 nor more than \$20,000: *Provided*, That any person or any officer or director of any corporation subject to the provisions of this act, or the interstate commerce act and the acts amendatory thereof, or any receiver, trustee, lessee, agent, or person acting for or employed by any such corporation, who shall be convicted as aforesaid, shall, in addition to the fine herein provided for, be liable to imprisonment in the penitentiary for a term not exceeding two years, in the discretion of the court. Every violation of this section may be prosecuted in any court of the United States having jurisdiction of crimes within the district in which such violation is committed, or through which the transportation is conducted, or in which the car service is performed, or in which such concession or discrimination is granted or given or solicited or accepted or received; and whenever the offense is begun in one jurisdiction and completed in another it may be dealt with, inquired of, tried, determined, and punished in either jurisdiction in the same manner as if the offense had been actually and wholly committed therein.

"Sec. 8. There is hereby authorized to be appropriated the sum of \$250,000, available until expended, for the purposes of this act, including payment of personal services in the District of Columbia and elsewhere, and all expenses incident to organizing the work of the President's fuel distribution committee, and not exceeding \$50,000 thereof shall be available for reimbursement and payment upon specific approval of the President of expenses incurred since May 15, 1922, in connection with the work of the President's fuel distribution committee organized for the purpose of helping to meet the emergency existing in the matter of fuel."

The title has been amended to conform to the text as agreed upon in conference, as follows:

"To declare a national emergency to exist in the production, transportation, and distribution of coal and other fuel, granting additional powers to the Interstate Commerce Commission, providing for the appointment of a Federal Fuel Distributor, providing for the declaration of car-service priorities during the present emergency, and to prevent the sale of fuel at unjust and unreasonably high prices."





One of the Three Tent Villages for Employees at the Corbin, Ky., Shops of the L. & N.

## L. & N. Moves Coal in Spite of Obstacles

Heavy Traffic Increase Caused by Coal Strike Subjected to  
Intensive Sabotage Since July 1

**T**HE COAL STRIKE which began April 1 effected a tremendous increase in coal traffic on the railroads serving the great non-union producing territories of West Virginia and Kentucky. With the advent of the shopmen's strike extraordinary efforts were put forth to hinder or block the movement of coal from these territories; other traffic has been left to move practically unhindered by the intensive sabotage to which coal traffic has been subjected.

The Louisville & Nashville, serving the Eastern Kentucky fields, is one of the three roads which have been most directly affected by this situation and because of its strategic, and vulnerable, position in the Cumberland field, has perhaps been subjected to greater pressure than any of the others. But notwithstanding the shopmen's strike and the intensive efforts to cripple the service on its largest coal producing division, the railroad moved practically as great a volume of coal from the coal fields actually in production, during July, 1922, as was moved during the same month of the previous year.

The Louisville & Nashville serves coal fields on four widely separated parts of the system. Normally, 63 to 68 per cent of its total coal traffic comes from the Eastern Kentucky and Cumberland fields; 15 to 20 per cent from Western Kentucky, and 11 to 14 per cent from the Alabama field. These are all non-union fields. About four per cent of the road's normal coal traffic comes from union mines in Illinois.

Although conditions created by the shopmen's strike have somewhat disturbed the movement from the Western Kentucky, as well as from the Eastern Kentucky and Cumberland fields, the greatest difficulties have been encountered in the Cumberland fields and the present article will be confined to a description of the conditions in that territory, particularly as they affected the Cumberland Valley division, which serves the Cumberland field.

### Eastern Kentucky Fields Rapidly Developing

The Louisville & Nashville serves two coal fields both of which are largely in the eastern part of Kentucky. The more southerly of the two, known as the Cumberland field, lies in Tennessee, Kentucky and Virginia. It extends from southwest to northeast for a distance of about 90 miles,

parallel with the Kentucky-Virginia state line, and is approximately 25 miles wide. The principal developments in this field lie along the Cumberland river valley in Southeastern Kentucky and are served by the Harlan branch of the Cumberland Valley division. Including the main line, which also produces some coal, both in Kentucky and Virginia, this division has a track capacity for handling about 800 carloads of coal a day. This field is a comparatively old development, but during the past 22 years the railroad has spent over \$9,000,000 in new mine branches, grade revisions, double track and increased yard facilities to enlarge the coal handling capacity of these lines.

The northerly, or Eastern Kentucky field proper, covers an area of 12,000 sq. mi. and is comparatively undeveloped. This field is served on the east by the Chesapeake & Ohio and the Baltimore & Ohio along the Big Sandy river and its tributaries. The Eastern Kentucky division of the L. & N., extending in a southeasterly direction from the main line of the Kentucky division at Winchester, Ky., enters this field along the North Fork of the Kentucky river which it follows to its extreme head-waters, a distance of about 185 miles. In the past 12 years the L. & N. has spent about \$17,000,000 in adding to the line and enlarging yard and track facilities on the Eastern Kentucky division. This division now has a daily capacity of about 650 carloads of coal.

A large percentage of the coal produced in the territories served by both the Cumberland Valley and the Eastern Kentucky divisions is moved from Corbin, Ky., and Ravenna, Ky., respectively, over the lines of the Kentucky division which extends north from Corbin, Ky., to Cincinnati, Ohio. During the past 12 years approximately \$13,000,000 has been spent in enlarging track facilities on this division, including extensive double tracking and a hump yard at De Coursey, Ky., for classifying Cincinnati bridge deliveries. This constitutes a total of over \$39,000,000 which has been spent on the fixed plant, largely to meet the requirements of coal traffic from the two Eastern Kentucky fields, most of which has been spent since 1910. Adding to this total \$7,000,000 worth of equipment which may properly be apportioned to the coal traffic in this territory, a total of over \$46,000,000 has been spent on road equipment to meet the

requirements of this territory, approximately \$11,000,000 of which has been authorized and spent since the termination of Federal control on March 1, 1920.

Notwithstanding the magnitude of these increases in railroad facilities there has been a constant development of mine capacity in excess of the normal requirements of the market so that, working full time, the mines in the Eastern Kentucky fields have a maximum loading capacity greater than the track capacity of the railroad. Although, under average conditions the mines on the Cumberland Valley division, working three or four days a week, load some 3,000 cars which the railroad moves at the rate of about 500 loads a day, these mines have a maximum loading capacity of 1,700 cars a day.

Typical of the tendency toward over development of mine capacity is the fact that, under the present favorable market conditions, this road is being subjected to more or less pressure to provide branches aggregating about 117 miles in the Eastern Kentucky fields, which would open up 195,000 acres of new coal land and add approximately 20,000,000 to 30,000,000 tons annually to the capacity of the mines on this part of the system.

### Big Increase in Traffic Caused by Coal Strike

The record carload coal traffic on the Louisville & Nashville was handled in 1920, aggregating from all fields approximately 512,500 carloads. The largest single month's business during that year was handled in December and totaled 51,175 carloads. The volume of coal traffic in 1921 was slightly greater than that during the preceding year although the number of cars handled was less. A new record was established in October, 1921, however, when a total of 52,717 loads were moved, at the rate of 2,081 cars per working day.

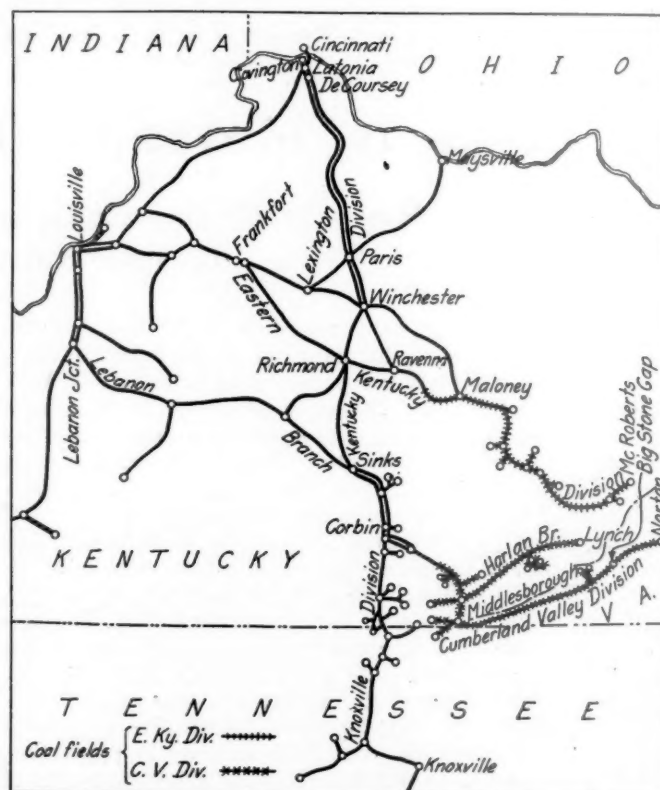
At no time since April 1, until the coal strike was finally settled, was any coal loaded in the Illinois field. From the other fields, however, the L. & N. handled an aggregate business of 66,415 cars in May and 64,558 cars in June, at the rate of 2,460 loads per working day in May and 2,483 loads per working day in June, rates exceeding that of the largest previous record by 18 and 19 per cent, respectively. On several days during these two months the Cumberland Valley division loaded over 1,000 cars of coal; a record was established on June 12, when 1,241 cars were loaded. In May the average loading per working day on this division was 818 cars and in June, 814 cars, marking the full utilization of available track capacity, while on the Eastern Kentucky division, with a record of 900 cars as the largest day's business, the loading averaged 669 cars a day in both May and June. Furthermore, a number of mines on the east end of the Cumberland Valley division between Big Stone Gap and Norton, Va., from which business normally moves over other lines, threw a heavy movement westward over the Cumberland Valley division. During March the movement from this territory had averaged about four loads a day. By April 15 it had increased to 250 loads a day. This business had to be moved over 75 miles of line the character of which requires the use of light power, with grades which limit the rating to less than 800 tons per train.

Normally about 40 per cent of the coal produced on the Cumberland Valley division moves north over the Kentucky division, 40 per cent moves west from Sinks, Ky., over the Lebanon branch to Louisville, Ky., and 20 per cent moves south over the Knoxville division. During the coal strike, however, about 75 per cent of the Cumberland Valley coal has been moving north over the Kentucky division, adding materially to the volume of traffic movement over the 58-mile single track line from Sinks to Winchester, Ky., a line with 1.2 per cent ruling grades, requiring helper service throughout the entire distance. With the increase in loading on the Cumberland Valley and the Eastern Kentucky divisions and

the changes in the routing caused by the coal strike the Kentucky division handled a total of from 1,000 to 1,600 cars a day into the De Coursey yards at the north end of the division, averaging during the months of April, May and June 46 per cent more traffic than was handled during the same months in 1921, which, because of a rapidly growing traffic, had not themselves been exceeded by the same months of any previous year.

### Corbin the Key to the Cumberland Field

Corbin, Ky., is one of the most important freight terminals on the L. & N. It forms the terminal of the Kentucky division on the north, the Knoxville division on the south and the Cumberland Valley division on the east. Traffic between Louisville, Ky., via the Lebanon branch and points south and east of Corbin also passes through the Corbin yards. During the month of May, 25,799 loads from the



Lines of the Louisville & Nashville Serving the Eastern Kentucky and Cumberland Coal Fields

Cumberland Valley divisions, 3,084 loads from the south over the Knoxville division, and 3,463 loads from the north over the Kentucky division and the Lebanon branch, were handled through the Corbin yards, a total of over 32,000 carloads. In addition to the loads, over 20,000 empty coal cars were moved into Corbin from the north for distribution to the mines on the Cumberland Valley division, making a total of more than 50,000 cars which were handled through this terminal during the month.

Mechanical facilities at this point consist of a 25-stall roundhouse with a small machine shop to take care of running repairs and a limited amount of light classified repairs, and a wood mill for finishing car repair materials. The terminal normally despatches from 50 to 60 locomotives a day and at the time of the strike employed 686 men in the roundhouse and on the car repair tracks. On the morning of July 1 the master mechanic and three foremen constituted the entire force at this point and all that could be accomplished was the movement of passenger trains until a new



force could be built up. This alone required the despatching of 11 engines in 24 hours.

Corbin is exclusively a railroad town, and local sympathy was lined up solidly behind the striking shopmen. Therefore, before a new force could be built up it was necessary to establish a self-contained camp at the terminal with a complete commissary organization. Beginning July 7, a camp of 150 sleeping tents, floored and electric lighted, was established in three villages with seven complete kitchen and dining tent units. Everything possible, under the circumstances, has been done to make agreeable the life of employees compelled to live in complete isolation from direct contact with the outside world. The camp includes shower baths, an emergency hospital, a moving picture show and a radio outfit. Open entertainments for the benefit of the employees are provided by the two latter facilities every evening. A check car has also been provided, where personal effects may be stored in safety.

Since the establishment of this camp, notwithstanding a lack of trained sub-foremen, the force has been gradually built up and developed into a working organization the effectiveness of which is constantly increasing. At the end of August it consisted of approximately 650 mechanics and helpers and about 150 laborers, in addition to about 200 guards required properly to patrol the railroad property throughout the 24 hours.

### Two Thousand Cars Maliciously Damaged

But delays incident to the building up of a new organization in the Corbin terminal were by no means the only obstacles placed in the way of the movement of traffic. At the beginning of the strike there were about 3,500 loads on hand on the Cumberland Valley division outside of Corbin and 1,200 loads in the yards at Corbin. At the outset all of this equipment was unguarded and when power began to be available whole strings of these loads at the tipples or on sidings were found with the air hose cut and with coupler



Typical Examples of Cut Air Hose Removed from Cars at Corbin, Ky.

knuckles, brake shoes and brake shoe keys removed. On one string of 39 cars, 76 hose were found to have been maliciously destroyed. As many as 30 and 40 cars have been rendered unserviceable in a single night in the yard at Corbin.

Up to August 28 there were clear records of 1,122 cars in Corbin and on the lines adjacent to Corbin on which the air hose was cut, 75 cars on which the passage through the hose was stopped and 150 on which the journals, couplers and brake shoes had been tampered with. Including cars subjected to similar sabotage on other parts of the system, there is a clear record of approximately 2,000 cars known to have been damaged by deliberate intent. That sand and other destructive materials have also been applied to the journals of many other cars which were not discovered in the yards, is evident from the many complaints from train service

employees. In one train more than 14 cars had to be brassed and relubricated within a distance of 20 miles.

To keep traffic moving since the strike it has, therefore, been necessary to do an unusual amount of car repair work at outlying points on the Cumberland Valley division. But it was impossible to send men out to do the work without armed guards for their protection. Accordingly, a traveling repair force of 18 men with the necessary armed guards was organized and provided with five cars, including commissary, materials, tools and supplies. Under this method of handling the work the division had been practically cleared of shop cars by the end of August.

Under these conditions the dropping off of coal movement from the Cumberland Valley division in July is not surprising. On several days during the first ten days of the month the loading was less than 10 cars a day. By the end of the month, however, it had increased to over 400 a day and had averaged 259 cars a day for the month. Taking the system as a whole, and excluding from the comparison the St. Louis division in Southern Illinois, on which coal was loaded only during the first three months of this year, the total loadings in July amounted to 37,235 cars, or nearly 96 per cent of the loading in July, 1921.

### A Five-Day Brotherhood Strike

During the first two weeks in August the daily loadings on the Cumberland Valley division were gradually increasing, for the first five days averaging 390 cars a day and for the next week 489 cars a day. Then, on the morning of August 14, a strike of train service employees, confined to the Cumberland Valley division, tied up the division and the Corbin yard, which is operated by the Cumberland Valley division employees. The grievances out of which this strike grew involved the alleged unsafe condition of motive power and cars and the employment of armed guards. It was settled, however, without adding any serious handicaps to operation and the men returned to work on the afternoon of August 18. With operations on the other two divisions running into Corbin continuing during the five days of the strike on the Cumberland Valley division, several days elapsed before the accumulation of loads in the yard and on the line of the division itself could be cleared, and the first empties were not placed at the mines until August 24.

### Operations Improving

By the end of August bad-order cars were practically cleared up on this division, the terminal at Corbin was despatching from 40 to 44 engines a day,—all of which were leaving the terminal in condition to meet the most exacting demands of the train service employees,—and operations are rapidly returning to normal.

With the general resumption of coal production in the union bituminous mines throughout the country, however, and the entire industry ready to load to full mine capacity, the limiting factor in the production in the Eastern Kentucky coal fields in the future is much less likely to be track or motive power capacity than the ability to secure an adequate supply of empty coal cars.

THREE EMPLOYEES and two passengers killed is the reported result of a collision on the Northern Pacific on Thursday evening, September 7, at Parkwater, Wash., four miles east of Spokane. Westbound passenger train No. 41 ran into a four-car train of shopmen occupying the main track and headed west. Reports indicate that both of the passengers killed would be classed as employees. It is said that the shop train entered the main track after reading a switch indicator which indicated that no train was approaching. The automatic block signal which should have stopped Train 41 is 6,000 feet in the rear.

## Hearing on Daugherty Injunction Completed

**A**FTER FOUR DAYS of incessant allegation of violence and lawlessness, the United States rested its case against the Railway Employees Department of the American Federation of Labor for conspiracy to disrupt interstate commerce and in support of a plea for the now famous "Daugherty injunction." The opening phases of this legal battle were described in the *Railway Age* of September 16, page 507. As indicated at that time, the government continued throughout the week to read thousands of affidavits from witnesses of acts of violence and instances where strikers have taken the law into their own hands in the name of unionism, and, by every known artifice of intimidation and actual crime, sought to terrorize men into allegiance to the strikers' cause.

The affidavits showed that the strikers dynamited and burnt; they fired shots through workmen's homes and through camp cars in which workers were interned on railroad property; they blew up water tanks and put railroad buildings to the torch; they stuffed sand, gravel and emery in the journals of locomotives and cars; they pulled bolts and nuts from rolling stock and withdrew spikes from rails; they painted signs of "scab" on workmen's homes and on the sidewalks in front of them; they coerced mayors and police authorities into looking the other way when violence was committed against loyal workers; they kidnaped workmen and threatened to make way with their families; they frightened storekeepers into refusing to sell to "scabs" and boarding houses from giving them food or lodging. Hundreds of men had sworn to cases of brutal assault in the main streets of towns and cities.

With the presentation of this evidence, the government has rested its case. On September 18 the defendants retaliated with a scathing denunciation of the government's evidence as "an avalanche of hearsay, mixed with perjury." Donald R. Richberg, chief of counsel for the striking shopmen, asked that Attorney-General Daugherty's petition for permanency of the injunction now temporarily in effect be dismissed. He questioned the government's right to seek such an injunction, doubted the jurisdiction of the court and insisted that the attorney-general and his staff have failed to make out a case.

The 25,000 affidavits filed by the government "do not charge the defendants named in the case with any crime," he said. "They recite acts of violence, but not one of them directly connects the defendants with the crimes charged."

The first ruling by Judge J. H. Wilkerson construed as favoring the shop crafts in the injunction proceedings, came on September 19 when he ordered the first class of affidavits submitted to the government, 283 in number, thrown out on the petition of Attorney Richberg. It was charged the makers of the affidavits were unaware that they were to be used in court, and that they were therefore not liable for perjury. Judge Wilkerson had previously ruled against throwing out the remaining classes of affidavits.

### Attorney-General Daugherty Defends His Injunction Activities

Attorney-General Daugherty defended his course in the injunction proceedings and incidentally paid his respects to Samuel Gompers, president of the American Federation of Labor, in a statement reading in part as follows:

"I would say that, if this case is fortunate in its preparation and presentation and decision, I would guess there is nobody now living old enough to take observation of these proceedings who would ever see another strike involving the transportation facilities of interstate commerce.

"It has been a long time since the decision in the Debs case. That was the outstanding case that involved these questions and aside from the changes and extensions that naturally come in the

law and the construction of the law in the development of the times, there is very little new in this case.

"Anything that would have been held, or can be held, to be a violation of the law construed in connection with the restraining order in the Debs case, these same facts being shown, would be construed to be a violation of the order in this case, and there is nothing in this case that would be held a violation of the restraining order that would not likewise be held to be a violation of the restraining order in the Debs case. Our order is a little more elaborate and accommodatingly exquisite.

"Mr. Gompers has criticized the government. You see, some people call him Uncle Sam, but he is not the Uncle Sam we are taking our orders from. There is another Uncle Sam here. And he talks about 'our constitution.' That is the one that he and some of his friends made. We are talking about the constitution that the American people made, and it is big enough and broad enough and fair enough to cover everything. This late demand and complaint on the part of the so-called minority for trampling upon their rights is all unjustified, but sometimes I feel like asking the question whether the majority have any rights at all. Whether the majority is expected to obey the will of the minority.

"I have nothing hard to say about labor—nothing hard to say about unions. If I were a workman in a factory I would belong to a union, but I would not belong to any union that had any rule of action or conduct which set aside the laws of the government. If I were running a shop or a factory, I would run an open shop—that means a man who works if he wants to work without being compelled to present a certified paper that he belongs to any organization. That is what a free country means. And as the days go by it will be found that this proceeding will be beneficial to legitimate unions, and they will commend it as things settle down."

It is probable that by the time this issue of the *Railway Age* is off the press, Judge Wilkerson will have rendered his decision in the case.

The shop-worn allegations of "interlocking directorates" and an iniquitous control of the railroad industry by the "inner banking circle centering around the House of Morgan" were again resurrected by legal representatives of Mr. Jewell and his associates in an advertised counter attack before Judge Wilkerson on September 19. Eight men representing the "railroad committees of the New York bank combine" considered to bring about the rail shop crafts' strike and have opposed peace in that strike in order to forward their "deliberate anti-labor union policy," according to an affidavit filed by Mr. Jewell and backed up by a fat exhibit giving figures, names and charts of interlocking railroad directorates which, it is alleged by the defense attorneys, are illegal. Mr. Jewell made a sweeping denial of all the government's charges of a conspiracy and counter charged that the Association of Railway Executives deliberately precipitated the strike as a part of a plot to crush the railway unions. The strike, Mr. Jewell asserted, was caused primarily by the refusal of the railroads to cease "farming out" repair work as ordered by the Labor Board. All this, it was pointed out by government attorneys, has little to do with the immediate issue at stake. It was suggested that the defense was filibustering since there has been no argument for modification of the terms of the Daugherty order.

The Jewell defense, however, does admit that the strike once lawfully called had the purpose of obstructing interstate commerce. The court wanted to know if it was permissible for either side in an industrial controversy to stop a service which was absolutely indispensable to the carrying on of commerce. Mr. Richberg replied that the rights of the human beings involved were more important to preserve than the "sacred rights of interstate commerce"; that constitutional rights must be preserved, commerce or no commerce. The precedent to be set in this case, it appears, is whether the government entering a controversy of this character on behalf of the whole people can set aside the rights and the freedom permitted in other industrial disputes. Judge Wilkerson has indicated several times that the Clayton Act provisions which the defense relies upon do not hold in a case of this character where the dominant purpose was to obstruct interstate commerce. Strike bulletins presented by the defense show that this was the purpose and that instructions were issued by the defendant officials.



# The Ljungstrom Turbine-Driven Locomotive

## Remarkable Efficiency Shown in Swedish State Railway Tests by Locomotive with Many Striking Features

WHEN IT IS RECALLED that the superheated-steam locomotive converts only about six to eight per cent of the heat value of the coal consumed into useful work, whereas from 15 per cent to 19 per cent is converted in modern power plants, it is apparent that there is room for large improvements in locomotive efficiency. The importance of the matter stands out prominently at the present time on account of the world-wide increasing cost of fuel. While this increase has not been as pronounced in this country as in Europe, fuel is still one of the largest items of railroad operating expenses.

At the present time the steam turbine is the most generally used prime mover in important stationary plants and is being extensively applied in the marine field, despite the efficiency of the compound or triple expansion engines formerly used. In any consideration of radical changes in locomotive design, one thus naturally turns to the steam turbine. As an evidence of this trend of design, three turbine-driven locomotives are now in operation in Europe. These include a 10-wheel locomotive with a geared Zoelly turbine built by Escher, Wyss & Co. of Zurich, Switzerland; the Ramsay turbo-electric locomotive of the 2-6-6-2 type and 22,000 lb. tractive force on the London & North Western, England, built by Armstrong, Whitworth & Co.; and the Ljungstrom geared-turbine locomotive of 30,000 lb. tractive force on the Swedish State Railways. A very complete description of the Swedish design has been given in recent issues of *Engineering* (London) to which the *Railway Age* is indebted for most of the information and illustrations used for this article.

### Object and General Description of Design

The design is largely the work of Fredrik Ljungstrom, assisted by his older brother, Birger Ljungstrom, general manager of Aktiebolaget Ljungstroms Angturbin, at whose factory near Stockholm the work of construction was carried out. In regard to running gear, boiler design, locomotive practice and requirements, the engineers of the Swedish State Railways collaborated with the builders. By combining the knowledge of an old established manufacturer of turbines and power plant equipment with that of practical railroad engineers, an epoch marking locomotive has been brought out after a vast amount of investigation and preliminary experimental work. In working out the details the object aimed at was to adapt the most advanced power station practices to the space and weight limitations of an ordinary locomotive and still retain the relatively high efficiency, reliability and possibility of long continued operation without inspection or withdrawal from service for repairs to boiler or machinery. Bearings and running parts have been enclosed as far as possible. The feed water is used over and over, thus reducing the amount of scale and necessary boiler work to a minimum. Tests in regular service have shown a fuel consumption of less than half that of standard type locomotives of a similar capacity when hauling the same trains. The small size of the boiler and the little coal required are striking proofs of increased efficiency.

It will be noted from the drawings that the locomotive consists of two parts, a boiler unit and a condenser unit. The forward half, containing the boiler and coal bunker, weighs 138,800 lb. and is carried on a four-wheel leading truck and three pairs of wheels with boxes and pedestals of ordinary European design. All ten wheels are of 38 1/4 in.

diameter and are used simply for carrying the weight. The rear unit, in addition to the condenser, carries the turbine, reduction gear and part of the auxiliary machinery. It weighs 143,360 lb. and is carried on three pairs of coupled driving wheels, 56 1/4 in. diameter, and a two-wheel trailing truck with 43 1/4 in. wheels. The weight on the driving wheels is 107,520 lb. and on the trailing truck, 35,840 lb.

### Boiler and Air Heater

The boiler carries 285 lb. steam pressure and is of the straight top type, 66 in. outside diameter, with a firebox 63 in. long by 63 in. wide which gives a grate area of 28 sq. ft. There are 160 tubes, 3 in. outside diameter and 9 ft. 10 3/8 in. long between the tube sheets. The evaporative heating surface includes 108 sq. ft. in the firebox and 1,130 sq. ft. in the tubes.

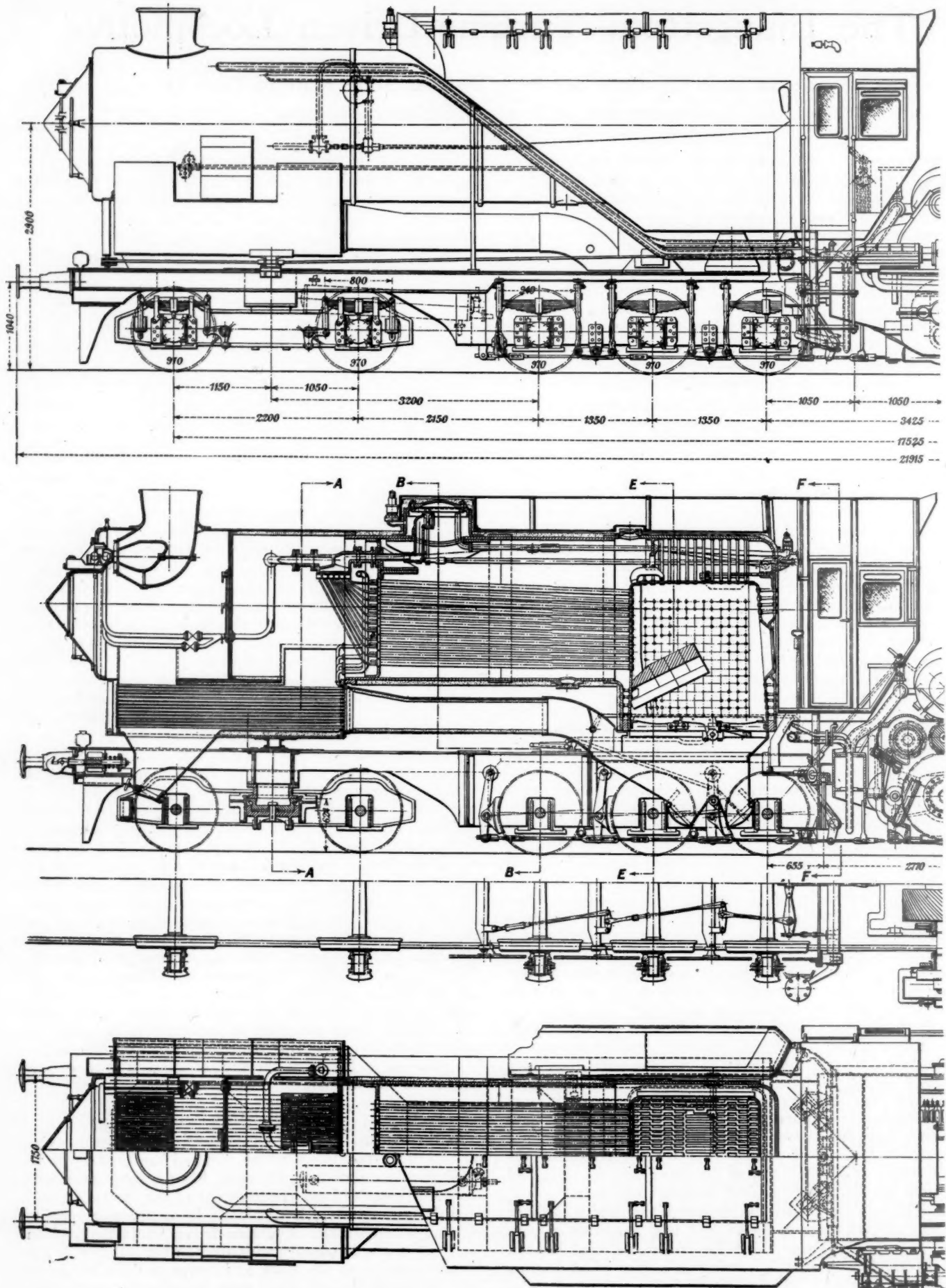
The length of the tubes is only about two-thirds that of ordinary locomotive boilers. This was decided upon because it was thought that greater economy could be secured by utilizing the surplus heat contained in the gases for preheating the air required for combustion. This is believed to be the first instance in which an air preheater has been used on a locomotive.

The smokebox is divided into two portions by a transverse diaphragm which causes the gases to pass down and through the air heater before going to the stack. This heater which is located beneath the smokebox contains 650 longitudinal brass tubes, 1.3 in. outside diameter, 8 ft. 11 1/4 in. long and with a heating surface of 1,787 sq. ft. The gases leave the boiler tubes at about 610 deg. F. and are cooled to about 300 deg. F. in passing through the air heater while the air for combustion is raised to about 300 deg. F.

The front portion of the air heater casing is extended downward to form a hopper in which soot and dust can collect and from which they can be discharged at will. A large duct connects the rear end of the air heater to the closed ash pan. The supply of air to the ash pan is controlled by a series of vertical shutters or dampers which cover the front end of the heater and can be opened and closed from the cab. The handle by which they are operated is interlocked with the fire door in such a way that they are closed automatically when the fire door is opened, thus avoiding the danger of flame or gases being blown back into the cab when the door is opened, while the locomotive is running. There is also an additional damper in the duct to the ash pan for further regulation. The coal is carried in a saddle bunker of seven tons capacity, mounted on top of the boiler and extending from the front of the dome to the cab. Its tapered form serves to bring the coal to doors opening to the foot plate on each side of the firebox where it is most convenient for the fireman.

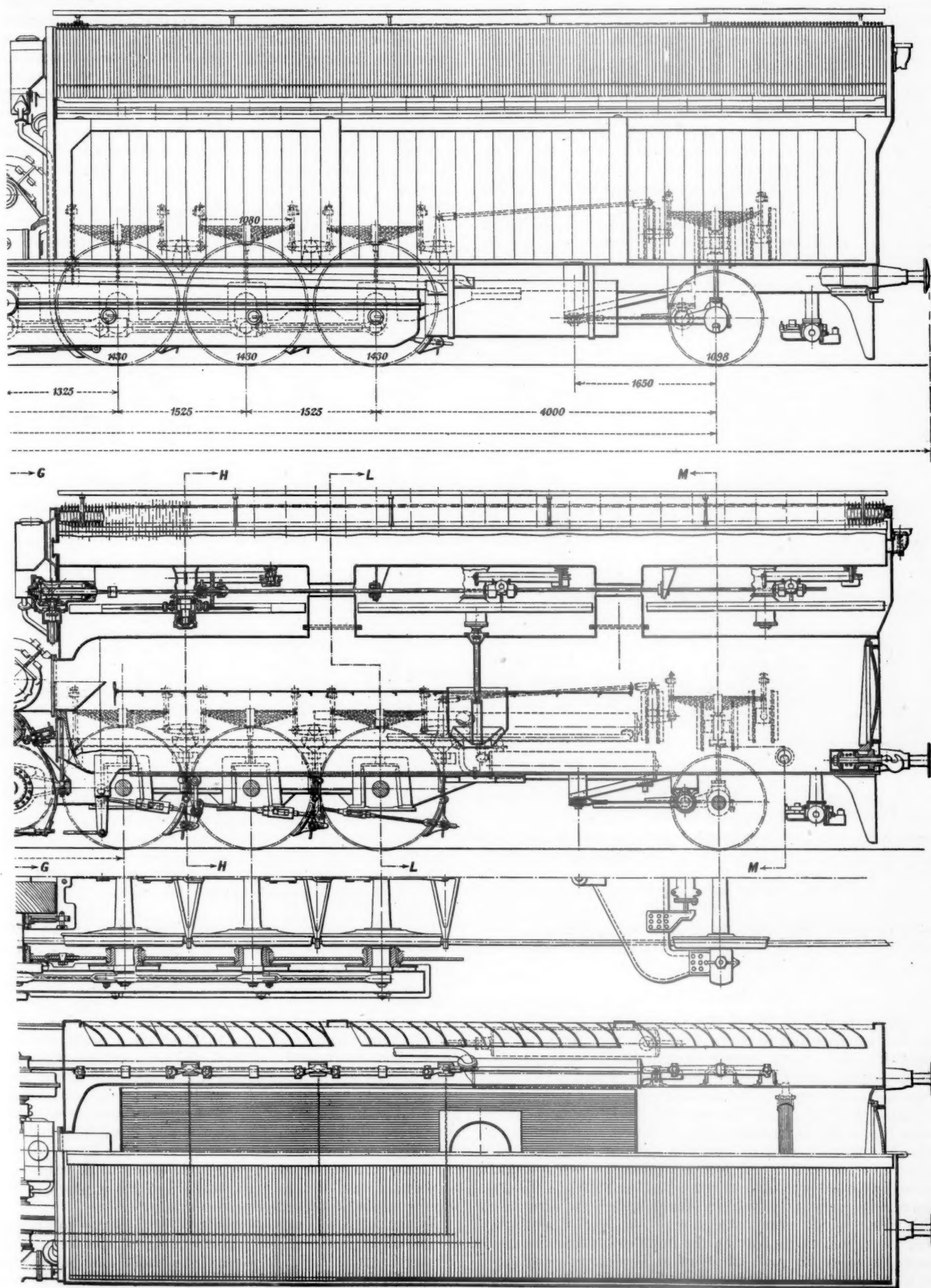
### Induced Draft Fan

As the exhaust steam is all condensed, it becomes necessary to use a fan to create the required draft. As will be noted from the drawings, the stack has an extension reaching down into the front compartment of the smokebox, and carried forward where it terminates in an annular opening with a horizontal axis. A turbine-driven fan is mounted on the front of the locomotive with the fan blades close to the annular opening to the stack and serves to draw the gases from the smokebox and force them through the stack. The cooling of the gases to 300 deg. F. while passing through



Elevation, Sections and Plan of





Ljungstrom Turbine-Driven Locomotive

the air heater also reduces their volume, both of which simplify the fan problem. The maximum speed of the fan is 10,000 r.p.m., at which speed the turbine develops 40 hp.

#### Superheater and Tube Blower

All tubes contain superheater elements. Each element is heated by the gases passing through two tubes, the superheater pipes making four passes through the first tube and then four through the second tube before returning to the header. The length of each pass is shorter as the steam becomes superheated. The total superheating surface is 861 sq. ft.

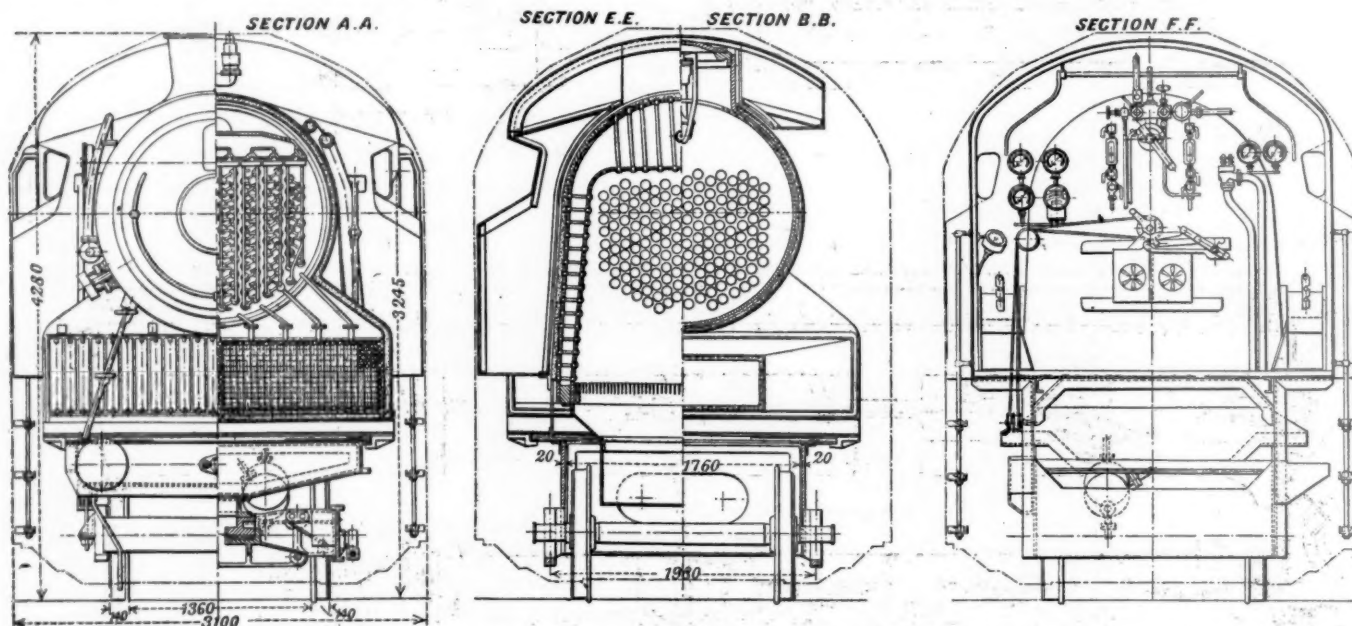
Provision has been made for blowing the soot out of the tubes, the mechanism being operated from the cab. A horizontal steam pipe extends across the front tube sheet above the top row of tubes, and to this pipe is connected a series

and bring the large exhaust opening in line with the center of the turbine. The last row of reaction blades carries another row of blades mounted on their tips. The steam after leaving the last inner row of blades goes through a reversing passage in the turbine casing and then backward axially through the outer row of blades to the exhaust passage which surrounds the turbine cylinder.

As a safeguard, the turbine is fitted with an overspeed governor which acts to shut off the steam should the speed exceed a certain predetermined amount above the normal maximum.

#### The Main Reduction Gear

A double reduction gear with a ratio of approximately 22 to 1 is used to bring down the rotative speed from 9,200 r.p.m. of the turbine to 420 r.p.m. of the low speed gear.



End Views and Sections of Boiler Unit

of smaller vertical pipes between each alternate row of tubes. These small pipes have drilled holes opposite each tube opening. When the engineman desires to remove the soot from the tubes he can admit steam to each one of the vertical pipes in succession. As extensions of the pipes pass down into the air heater, boiler tubes, superheater elements and air heater tubes are all cleaned at the same time. The tubes being blown in small sections, there is no appreciable interference with the draft, such as would result if all tubes were blown at the same time.

#### The Main Turbine

The main turbine is of the impulse-reaction type with axial steam flow and develops 1,800 b.h.p. at the maximum speed of 9,200 r.p.m., which corresponds to a locomotive running speed of 68.3 m.p.h. Superheated steam is carried from the boiler unit to the turbine by a steel pipe with a U-shaped bend to obtain the required flexibility between the two units of the locomotive. The cast-steel steam chest contains five nozzles, each of which is independently controlled by a valve operated by oil pressure through a rotary control valve conveniently located in the cab. The steam as it leaves the nozzles acts on a velocity compounded impulse wheel with two rows of rotary blades with one row of stationary blades between. After leaving the impulse blading the steam passes through 15 rows of reaction blades mounted on a built-up conically shaped rotor. A novel and ingenious method has been adopted to shorten the length of the turbine

On either end beyond the turbine spindle and in line therewith, is a double helical high speed pinion in rigid bearings. Flexibility is obtained by mounting flexible couplings on the ends of the turbine spindle and on the outer ends of the pinions, each pair of couplings being connected by a shaft which passes through the hollow shaft of the pinion.

The high speed pinions mesh with the teeth of two gears mounted on a shaft, the center portion of which is the low speed pinion. A spring connection is interposed between the rims of the high speed gears and the shaft which forms the low speed pinion to cushion such shocks as may arise between the driving wheels and the turbine. The low speed pinion normally meshes with the low speed gears mounted on the jack shaft, at the ends of which are cranks at 90 deg. angles. Connecting rods couple the crank pins to the three pairs of driving wheels. As an illustration of the precautions taken in designing this locomotive to exclude dust and dirt from all bearings, the cranks and connecting rods to the driving wheels are entirely enclosed. The lower part of the cover can be removed with little effort when inspection is necessary and in addition, small covers are provided for the inspection of the crank pins.

As the turbine is non-reversing, it is necessary to provide means in the gearing for the reversing of the locomotive. The arrangement used is a novel and bold one, but apparently effective and reliable. When the engine is to be run in a backward direction, the crank shaft is first dropped



slightly so that the low speed gear is thrown out of mesh with the pinion which drives it. After the gears have come to rest, an idler gear is brought into mesh with both the low speed gear on the crank shaft and the low speed pinion. As this idler gear has to connect with both the gear and the pinion in the train and as all gearing is of the double helical type, it has to be cut with helical teeth running in one direction and then recut with teeth running in the opposite direction. This doubling of the spirals reduces the tooth bearing to one-half of that used for driving in the forward motion, but as the idler pinion is only in use when the locomotive is backing, the strength is ample. The process of disengaging the pinion and bringing the idler into mesh is done automatically by oil pressure controlled by a simple movement of the handle of a control valve. The means employed for locking the gear in the two positions and for securing meshing without injury to the gears are interesting but not necessary to describe in detail. It is sufficient to state that the whole process of reversal is as quickly and as easily accomplished as with an ordinary locomotive equipped with a power reverse gear.

### The Condenser

The efficiency of a steam turbine depends upon the employment of a condenser which will ensure the maintenance of a high vacuum. The ordinary type of condenser used in stationary and marine installations with a large number of water tubes was considered to be impractical on account of

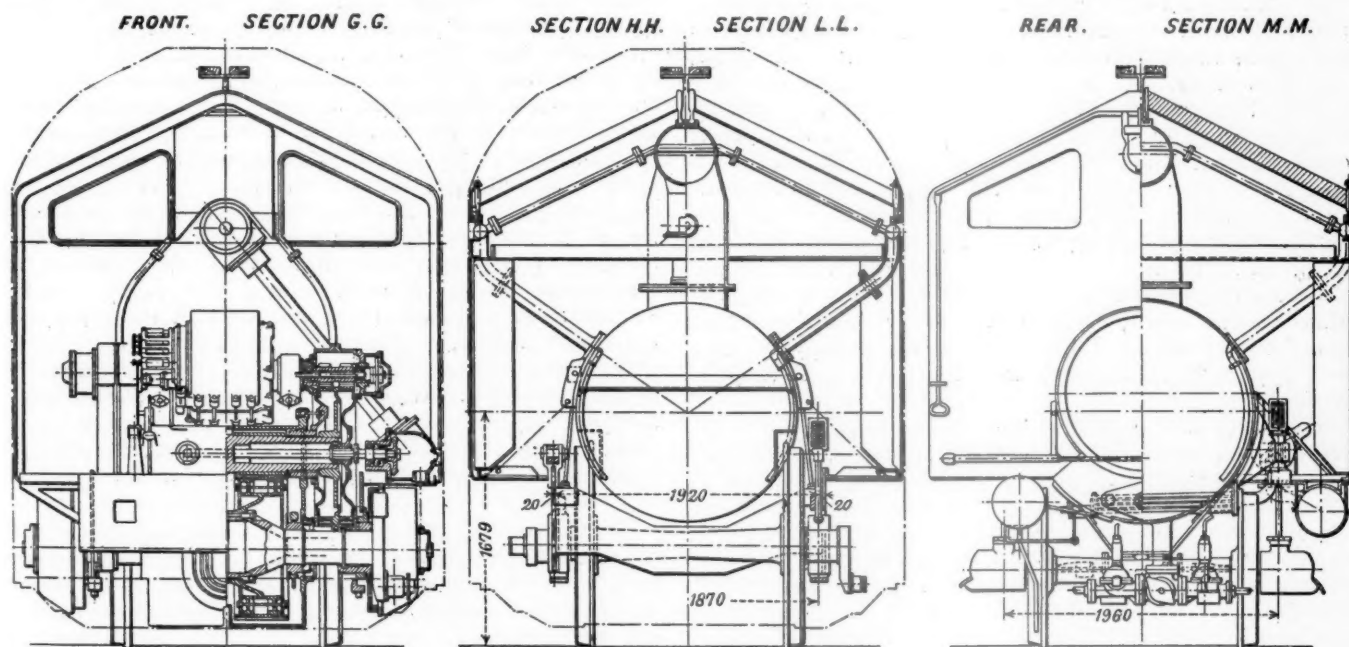
in on top of the water and then rises through two short connecting pipes to another cylindrical vessel about 22 in. in diameter which is located near the top of the unit.

Between the two drums are three fans which are driven from the main turbine by an inclined shaft and bevel gears. The fans themselves are driven by friction wheels which can be shifted to give the desired speed. Each fan has a capacity of 141 cu. ft. of air per second. The object of the fans is to induce a strong current of air over the cylindrical drums and past the copper tubes referred to later. The sides of the vehicle consist of vertical sheet steel guide plates which facilitate the entrance of air while the locomotive is running. The shape was determined by results obtained from experiments with a specially constructed wind tunnel.

The roof of the vehicle consists of a large number of specially formed flattened copper tubes in which most of the condensation takes place. These tubes are closely packed together and contain about 3,530 sq. ft. of cooling surface over which the air from the fans passes.

### Feedwater Heater

After the steam has been condensed, it is fed back to the boiler and on the way passes through three feedwater heaters arranged in series. Each heater is supplied with exhaust steam at a different temperature so that the feed water is heated progressively from about 120 deg. F. to 300 deg. F. The heaters are circular and contain a series of brass tubes, surrounded by exhaust steam. The first heater is supplied



End Views and Sections of Condenser Unit

the size, weight and large quantities of cooling water that would be required. An air-cooled condenser was consequently decided upon as the most suitable for locomotive use. In the condenser as in other parts, the design adopted shows good engineering, ingenuity and a willingness to depart from the conventional provided there is a clear advantage to be gained by so doing.

As has been stated, the condenser occupies most of the space of the second unit of the locomotive, the actual room occupied by the turbine and reduction gear being small. Running the full length of the unit and at the bottom is a cylindrical vessel about 66 in. in diameter which is normally half full of water of condensation. The turbine is bolted direct to a flange on the front of this vessel without interposed piping or expansion joints. The exhaust steam passes

with steam at approximately atmospheric pressure and 195 deg. F. from the condensate pump turbine, the air ejector for the condenser, the vacuum brake ejector, leakage from the dummy piston of the main turbine and steam from the other heaters. The intermediate heater is supplied with steam at approximately 9 lb. pressure and 230 deg. F. from the turbine boiler feed pump. The high pressure heater is supplied with steam at approximately 60 lb. pressure and 295 deg. F., being the exhaust from the induced draft fan turbine.

### Pumps and Air Ejector

The condensed water is taken by a condensate pump and delivered to a boiler feed pump which forces it through the feedwater heaters into the boiler. The condensate pump

which operates under a low head is of the single-impeller rotary type and driven by a small turbine, the speed being brought down by a single helical reduction gear. Saturated steam is used for this turbine although in practically all other places superheated steam is employed.

The boiler feed pump also is of the rotary type. It has three impellers in series and is driven by a direct-connected turbine. The boiler feed pump is mounted on a cast-iron oil reservoir. In this reservoir there is a rotary lubricating oil pump with a vertical spindle which is driven by a worm mounted on an extension of the boiler feed pump shaft. This pump supplies oil to the main turbine, the reduction gear, the various auxiliaries and also the important bearings on the locomotive. The use of force-feed lubrication in conjunction with the enclosure of running parts is expected to greatly increase the durability and make it possible to run the locomotive for long periods without requiring any attention.

An air ejector is used to free the condenser of air. This has two steam jets which work in series and is much simpler than an air pump. The discharge from the ejector is piped to the low-pressure feedwater heater so that there is little loss of heat.

#### Tests and Performance

Fuel economy is one of the strong claims for the Ljungstrom locomotive although low maintenance costs, large starting torque and evenness of turning effort also are advanced. The ordinary Swedish locomotive with about 145 lb. boiler pressure, steam superheated to 650 deg. F. and expanded down to an exhaust pressure of six pounds above atmosphere, will convert about 200 B.t.u. into useful work for every pound of steam used. The Ljungstrom locomotive with its higher pressure and steam expanded down to 2.1 lb. absolute converts about 400 B.t.u. into useful work. The fuel consumption is thus only 50 per cent as much as with an ordinary locomotive. In addition there are further economies resulting from preheating the air for combustion and from feedwater heating.

Before the locomotive was placed in service it was submitted to tests on a specially constructed dynamometer, which tests extended over several months and were carried on under the supervision of engineers from the Swedish State Railways.

Following these successful tests, it was turned over to the railroad and has since been used on numerous runs, hauling heavy trains and conforming to the operating conditions of other locomotives, the firing and running being performed by ordinary railway employees. In repeated instances a dynamometer car has been attached to the train and full records of performance thus obtained. The drawbar pull repeatedly has reached 30,000 lb. and the work performed has been in excess of 1,500 hp. These test records bear out the claims for fuel economy. For example, on one of the runs between Stockholm and Upsala the train consisted of 11 coaches and a dynamometer and weighed 596 short tons including the locomotive. The maximum speed was 51 m.p.h. and there were only a few stops. The coal consumption for the run averaged 37.4 lb. per 1,000 ton-miles. Under other conditions and where the stops have been frequent, the coal rate has been as high as 67 lb. A vacuum of 26 in. to 27 in. was easily maintained with an air temperature near the freezing point.

In operation, the locomotive has shown a better starting torque and quicker acceleration than standard locomotives. It is easily controlled and runs with unusual smoothness at all speeds. Coal consumption has been reduced 50 per cent and as there is very little loss of water, the supply lasts for a considerable time before replenishing is necessary. The continued performance of this remarkable locomotive will be watched with the greatest interest.

## Appropriation for Additional Service and Safety Inspection

WASHINGTON, D. C.

A DEFICIENCY appropriation of \$100,000 for the Interstate Commerce Commission for the employment of additional service agents and other personnel to carry out the car service work of the commission, and another appropriation of \$66,150 for 15 additional safety appliance inspectors was recommended in a report of the committee on appropriations and was passed by the House on September 19. The commission had also asked for an additional appropriation of \$201,917 for locomotive inspection to provide for 35 additional inspectors, but the committee took the position that this appropriation could not be made because the number of inspectors is provided in the permanent law.

J. C. Roth, director of service, who with other representatives of the commission testified in support of the appropriations before the sub-committee on September 14, said that the deteriorated condition of railroad equipment has resulted in accumulations of loaded freight cars upward of 100,000 cars. He said that the slowing down in transportation has dislocated the car supply to such an extent that it will take months to clear up the congestion and to repair the bad-order cars and locomotives. He expressed the opinion that not less than 25 per cent of the cars were in bad-order as compared with 15 per cent when the shopmen's strike began. In order to meet the emergency and to assist in the movement of freight, he said the commission had increased its force of service inspectors in the field from 4 to 20 by drawing them from various other bureaus of the commission and it has also been necessary to increase the clerical force because of the vast flood of correspondence coming from shippers in all sections of the country. Secretary McGinty said that since the first emergency service order was issued in July the commission has assigned to the service bureau 39 employees at an expense of \$76,020 and that thus far most of them have been drawn from other work in the commission, whose places it is necessary to fill, as the President has said that the regular work of the safety and locomotive inspection bureaus must go on. He said the force would be reduced as quickly as possible when the emergency is over. When members of the committee made the point that the number of locomotive inspectors was governed by law, he said that the President and the director of the budget bureau thought that this objection could be overcome in an emergency.

Mr. Roth said that the commission is pressing down upon the carriers through the men in the field, through personal conferences and correspondence to get the cars to the places where they are needed and that it is helping both the carriers and the shippers in various ways. A. G. Pack, chief inspector of locomotives, expressed the opinion that even with the settlement of the strike it will take several weeks to deal with the situation and improve conditions and it will take at least a year for the railroads to gain what they have lost in condition of motive power and equipment. Secretary McGinty said that the commission is receiving not "only thousands, but hundreds of thousands of complaints from all over the country."

W. J. Patterson, assistant chief inspector of safety, explaining the need of additional safety inspectors, said that in addition to the cars reported as in bad-order by the railroads themselves, the percentage of cars found by the commission's inspectors to be defective has increased from 3.41 per cent of the number inspected in January to 11.32 per cent in August. During the month of June 15 cases of violations of the safety appliance law were transmitted to the United States attorneys for prosecution, involving 39 counts. During July no cases were transmitted, but during



August 24 cases were transmitted, involving 36 counts. He said the inspectors inspect approximately 100,000 cars a month.

Mr. Pack said that during the past three years the locomotive inspection bureau has been seriously hampered in the performance of its duties by the lack of funds and that the number of inspectors was not increased when the law was extended to cover all parts of the locomotive. He said that the presence of the commission's men even on a division has a most beneficial effect on the improvement of motive power. In June of this year, he said, 43 per cent of the locomotives inspected by the commission were found to be defective; during July 60 per cent, and during August 71 per cent. Legislative representatives of the train service brotherhoods also testified before the sub-committee regarding the necessity for additional inspectors.

The appropriations committee also proposed an appropriation of \$150,000 to carry out the provisions of the new coal priority act passed by the Senate and the House last week. While the act authorized an appropriation of \$250,000, Secretary Hoover testified before the committee that the amount required would depend upon the length of time federal supervision was to continue and that a smaller sum than that authorized would suffice if transportation conditions become normal at an early date. Secretary Hoover said that if a hopeful view of the situation is taken, the necessity for having a federal fuel distributor will be over by the first of January, "but if, on the other hand, it develops that transportation is more deeply injured than now expected, that is, if the strike continues and we go on with degenerating motive power, we will be in the throes of coal famine all winter long."

## Strike Settled by Negotiation and Defeat

### Some Roads Take Back Strikers Under Willard-Jewell Plan— Wage Contracts for Train Service

THE ATTEMPT to place in effect the so called "Willard-Jewell peace plan," fully described in the *Railway Age* of September 16, page 503, has resulted in some misunderstanding between representatives of the shop employees and those roads which signified their willingness to cooperate in ending the shopmen's strike under the terms of this agreement. At one point the result was further rioting. Later reports indicate, however, that these misunderstandings are gradually being ironed out and that, insofar as those roads that have agreed to the plan are concerned, the shopmen's strike will soon be definitely ended. On many other roads which were not parties to this agreement it is likewise claimed that the shopmen's strike is ended but in an entirely different way. Practically all of these roads are claiming normal forces and normal production in their shops, and, while their officers state that they will take back any of the strikers who have not been guilty of violence and who are willing to come back minus their seniority rights but with their pension and other similar rights and privileges intact, they consistently maintain that they are not negotiating with Mr. Jewell's organization.

When representatives of the employees and of the roads came together to complete the terms under which the shopmen were to return to work under the "Willard-Jewell" plan, there immediately arose misunderstandings as to the intent of certain terms of this plan, particularly the status of the men now at work in the shops. On the Chicago & North Western for instance, the shopmen's committee demanded that all of the men who remained on the job when the strike was called or who were subsequently hired to take the place of strikers, be discharged. Officers of the road in turn pointed out the terms of the "Willard-Jewell" plan and eventually the difficulty was straightened out. The men were returning to work all along this line according to the latest reports.

A similar misunderstanding on the Chicago, Milwaukee & St. Paul led to minor disorders at the Galewood, Grand Avenue and Bensonville shops but this trouble was quickly ended with the arrival of police. Later announcements by officers of this road indicated that the men were returning to work as fast as arrangements could be completed for them.

From other points where representatives of the railroads and employees were negotiating under the new peace plan came reports of similar misunderstandings, but present in-

dications are that the shopmen on the roads which have agreed to this plan will be on the job again during the present or the coming week.

As yet there has been no definite announcement of the roads which are included in the list agreeing with Mr. Jewell on the solution of the strike problem, a fact which has led to a great deal of speculation as to the inclusion of certain carriers in this plan. Within several days after the announcement of the new plan officers of the following carriers definitely announced that their properties were not included in the negotiations with Mr. Jewell or would not agree to the peace plan:

The Atchison, Topeka & Santa Fe; the Atlantic Coast Line; the Boston & Albany; the Central of Georgia; the Central Railroad of New Jersey; the Chicago & Alton; the Chicago, Burlington & Quincy; the Chicago Great Western; the Delaware & Hudson; the Delaware, Lackawanna & Western; the Elgin, Joliet & Eastern; the Erie; the Fort Worth & Denver City; the Gulf Coast Lines; the Illinois Central; the Louisville & Nashville; the Lehigh Valley; the Minneapolis & St. Louis; the Missouri, Kansas & Texas; the Missouri Pacific; the New York, New Haven & Hartford; the Norfolk & Western; the Northern Pacific; the Pennsylvania; the St. Louis-San Francisco; the St. Louis Southwestern; the San Antonio & Aransas Pass; the Southern Pacific; the Texas Pacific; the Virginian; the Wabash; the Western of Alabama; the Nashville, Chattanooga & St. Louis; the Tennessee Central; the Chicago, Rock Island & Pacific and the Union Pacific.

#### Labor Board Chairman Comments on Peace Plan

The strike having been partly settled through direct negotiation between the railroads and the employees concerned, Chairman B. W. Hooper of the Railroad Labor Board was asked for a comment on the new peace plan. The following was the result:

"As a positive disbeliever in the moral right and practical efficacy of railway strikes, I am glad to know the strike has ended on a part of the roads. It is to be hoped that some plan of settlement can be agreed upon for all the others.

"No extended comment either in a postprandial or postmortem vein, is necessary.

"The settlement sustains the Transportation Act and the theory of orderly procedure for the adjustment of labor troubles in the railway industry. The decisions of the Labor Board stand un-

modified by the appeal to economic and physical force. All the questions upon which the strike was predicated will come back to the Board, if the parties desire to bring them there. If they should be, at any time, re-opened, the Board will accord them the fullest and fairest consideration, without any spirit of vindictiveness or reprisal.

"The question of seniority that arose out of the strike, is not disposed of by the settlement, as neither party yielded its position,

but the matter is referred to a commission, composed of representatives of both sides. This is nothing more or less than an adjustment board, with jurisdiction limited to questions arising out of the strike, and is in strict conformity with the Transportation Act.

"It may also be noted that this settlement is in substance and effect, identical with the last recommendation made by President Harding."

## Washington Regards Strike as Virtually Over

Official Washington appears to have treated the partial settlement of the shop strike as indicating virtually the end of the strike and representatives of the administration expressed varying degrees of optimism as to the effect of the strikes and their termination upon prospects for an era of great business expansion.

"While the losses to the country due to the two great strikes are considerable, they are easily over-estimated," said Secretary Hoover in a statement to the press. "The estimate of current coal miners' wages lost in the five months is not a correct basis of estimation of the loss because over a period of 18 months we will probably consume approximately the same amount of coal. In other words, the miners will work more days in the week and produce more coal in the next six or eight months than they would have produced if there had been no strike, and thus the wage roll of the next six or eight months will be larger and will in a considerable degree compensate the loss during this suspension.

"The real loss would lie more in the loss of productivity in industries that have, or might have, to close down as a result of the coal strike. If all of our industries can be kept in motion the loss will be much less from the coal strike than is currently estimated.

"The greatest loss today is the one being met by the farmer as a result of the railway strike. The export of farm produce has been seriously interfered with by inability of the railways to transport produce. Prices are, therefore, unduly depressed in the agricultural regions and the farmer is suffering grievously.

"The inability to transport manufactured products will create some degree of loss, but not so serious as that to agriculture.

"There are other losses that must be counted into the national balance sheet, such as the damage to the railways, the extra charges which they have been put to, the cost of keeping the mines open and maintaining them during the period of suspension, and a hundred other items that are of importance.

"In the broad view, however, if we can get back to business, if we can secure a resumption of transportation and rapid distribution of coal and agricultural produce, we will not have received such an economic wound as cannot be very quickly recovered from. We will probably not be on such a high plane of business prosperity during the next six months as we would have been had the strikes not taken place, but we will undoubtedly be on a much higher and much more comfortable plane than that of last year."

### Davis and Mellon Optimistic

Secretary Davis of the Department of Labor had issued a statement saying the settlement of the strikes had removed the last obstacle to "unprecedented" prosperity, while Secretary Mellon of the Treasury Department, although considering the business outlook "very good" recognized limitations imposed on the productive capacity of the country by the fact that the railroads have not been expanding their facilities in recent years as well as by the present condition of equipment. Mr. Mellon was represented as seeing no difficulty ahead of the carriers in supplying the requirements of the country over the winter, but reports to the Treasury Department indicate that some commercial projects have

been deferred until next year as a result of the uncertain conditions created by the coal and railroad strikes.

Hearings on motion of the United States attorney and United States marshal for the District of Columbia to dismiss the injunction proceedings brought by the National Brotherhood of Electrical Workers were postponed by Justice Stafford of the Supreme Court of the District of Columbia from September 15 to September 25. The temporary injunction restraining interference with meetings of the railroad strikers will remain in force until that hearing.

### Harrison Wants More Boiler Inspectors

Senator Harrison of Mississippi, who has a habit of interrupting the consideration of bills in the Senate by making partisan political speeches, interjected a discussion of the railroad situation into the debate on the resolution for a government loan to Liberia by offering an amendment to appropriate \$100,000 to enable the Interstate Commerce Commission to appoint such additional number of inspectors of locomotive boilers as may be necessary to meet the present emergency at salaries of \$1,800 a year. The adoption of such a plan might tend to find jobs for a number of men who have lost their seniority rights during the strike. Senator Harrison supported this proposed amendment by citing figures showing an increase in the number of bad order cars and locomotives in such a way as to give the impression that all the bad order equipment was in service and therefore unsafe for use. Senator Cummins said he intended to vote for the amendment, although he would prefer to have it constituted a permanent addition to the interstate commerce law. He said he had been attempting for a year and a half to have the number of inspectors increased from 50 to 100 and to increase their compensation. He said the commission's appropriation for this purpose has been formerly \$300,000 a year, but that the Budget Bureau had reduced it to \$290,000.

### Two Bills to Abolish Labor Board

Two bills to abolish the Railroad Labor Board were introduced in the House on September 14 in addition to one previously introduced by Representative Hoch. The bill introduced by Representative Cooper of Ohio would repeal the section of the Transportation Act under which the board was created and would turn the files of the board over to the United States Board of Mediation and Conciliation, which has not yet been legally abolished, but which has gone out of existence because no appropriation was made for it. Mr. Cooper said he sought to reestablish the plan of mediation, conciliation and arbitration provided for by the Newlands act. The other bill, to abolish the board, was introduced by Representative Goodykoontz of West Virginia.

There were 8,890 less cars requiring heavy repairs on September 1 last than there were at the beginning of the shopmen's strike on July 1, according to reports filed with the Car Service Division of the American Railway Association.

There were, however, 5,981 more cars requiring light and minor repairs on September 1 than at the beginning of the strike. This made a net decrease of 2,909 cars in the number requiring both light and heavy repairs since July 1.

The total number in need of repairs on September 1 was



321,674 cars, or 14.1 per cent of the cars on line. On July 1 there were 324,583 cars, or 14.3 per cent.

There were also 52,413 less cars requiring both heavy and light repairs on September 1 last than on the same date one year ago. Of cars requiring heavy repairs, there was on September 1 last a decrease of 33,237 cars below the total on that date last year, while there was a decrease, compared with one year ago of 19,176 in the number re-

quiring light repairs. One year ago, 16.2 per cent of the cars on line needed repairs.

Reports also showed a decrease of 23,339 in the number of cars needing repair on September 1, compared with August 1 last, with 15,292 less cars requiring heavy repairs, and 8,047 less cars requiring light repairs. On September 1 there were 345,013 cars in need of repair, or 15.3 per cent of the cars on line.

## Strike Situation Rapidly Clears in Chicago and Western Territory

Conditions in the shops of carriers in western territory are rapidly approaching normal with the consummation of the so-called "Willard-Jewell peace plan" on several of the roads and the continued recruiting of new forces on others. As it has become more and more apparent that the shopmen's strike has collapsed completely, a fact indicated by the success of the carriers in recruiting new forces and by the attitude and action of Mr. Jewell in finally agreeing to a separate peace with each carrier, the reports of violence, bombing and similar activities on the part of strikers or their sympathizers have become fewer and of only minor importance.

As indicative of the general conditions prevailing on western lines, the Western Presidents' Committee of the Association of Railway Executives issued a statement on September 19 outlining the situation on the previous day. This statement said:

"Reports for September 18, show that 122,415 men are now employed in the shop and repair forces of the western roads. This was 77.5 per cent of the force employed on June 30, the day before the strike began. Excepting the three western roads which have joined in the 'Willard-Jewell' peace movement, namely the Chicago, Milwaukee & St. Paul, the Monon and the Chicago & North Western, the shop forces of the remaining western carriers were 76 per cent of normal yesterday."

Reports made to the Western Presidents' Committee on September 20 indicated that 83 per cent of the normal shop

forces of the western roads were at work on that day. It was also reported that the western lines were handling an exceptionally heavy traffic.

The use of dynamite and bombs continued to a small extent during the last week, reports being made of the bombing of homes of three Louisville & Nashville employees at Birmingham, Ala., and a Wabash employee at St. Louis and the bombing of a Chicago & Alton tank car at Bloomington, Ill., and a Louisville & Nashville freight car at Albany, Ala. Riots, slugging and similar outbreaks were comparatively few, the press reporting trouble of this character at Chicago and Burlington, Ia., where the homes of loyal employees were attacked. Local police officers at Needles, Cal., where there has been more or less disorder since the strike began, requested the proclamation of martial law and the sending of troops to that point as the result of the sheriff's statement that he could not supply sufficient men to give protection to railroad employees who are now working.

There have been numerous instances during the past week where strikers or their sympathizers have been fined and sentenced to prison terms on the charge of violating injunctions issued to the carriers prohibiting interference with railroad operation. At Peoria, for instance, fines totalling \$3,700 and various prison sentences were given to strikers who were convicted of violating injunctions issued to the railroads and similarly three former Chicago & Alton employees at Slater, Mo., were convicted on similar charges.

## Strike Settled on Four Roads in East and South

The strike of the shopmen has been settled on the Seaboard Air Line, the Baltimore & Ohio, the Southern and the New York Central under the terms of the "Willard-Jewell" agreement. Settlement on the New York Central did not come until Tuesday, after preliminary negotiations had failed and until B. M. Jewell had been called from Chicago to reopen negotiations. Earlier conferences failed to reach an agreement, it was said, because of the attempted interjection by the unions' representatives of terms not outlined in the announced plan of settlement.

### Settlement on the Southern

A conference between Vice-President Miller of the Southern Railway and the general chairmen of the six striking shop crafts held on September 16 adjourned without reaching an agreement for immediate termination of the strike but at another meeting on Monday agreements were signed both for the Southern and the Mobile & Ohio, on the basis of the Chicago agreement. The Southern was willing to settle on the basis of the Chicago agreement and presented this to the shop craft chairmen for their signature, but they at first declined to sign and were insisting on the dismissal of the new men employed during the strike.

### Lehigh Valley Will Not Meet

#### Representatives of Strikers

The Lehigh Valley has announced that it will not enter into negotiations with representatives of strikers and that

present employees are now forming an association with which the company will co-operate in every way. The statement of President E. E. Loomis follows in part:

"Lehigh Valley is not a party to any agreement which may have been made in Chicago. The pledges we have made to our employees who continued working after the strike was called, as well as to the new men who have entered our service since that time, to say nothing of our policies to our supervisory offices, make it out of the question for us to accept any such plan as is proposed. "The Lehigh Valley employees are now forming an association of their own, started of their own initiative, and we have promised to co-operate with them in every way. I do not see how a railroad can be expected to retain or build up a loyal organization on any other basis."

According to Mr. Loomis, the new organization will be known as the Association of Maintenance of Equipment Employees of the Lehigh Valley Railroad.

L. F. Loree, president of the Delaware & Hudson, reiterated on Wednesday his previously announced intention to refuse to confer with Mr. Jewell or his associates.

### Violence in East and South

Dynamite outrages figured in the news dispatches during the past week from Albany, Ga., Jacksonville, Fla., and Cumberland, Md. At Cumberland, the Welton Tunnel bridge of the Western Maryland, over the Potomac river, was damaged about \$500 at 4 o'clock in the morning of September 16. At Jacksonville on the 17th, a man was arrested charged with having attempted to destroy a trestle of

the Atlantic Coast Line at Baldwin, Fla. On the same day another man was arrested for having aided in the escape of men who had been engaged in another bridge outrage. In this connection, eight men are now in custody at Jacksonville. At Albany a car in a freight train was blown up at 10 o'clock in the evening of September 13. Frank Parkhouse, a police officer of the Delaware, Lackawanna & Western, died at Elmira, N. Y., on September 15 from pistol wounds; and a colored man, James Whitfield, a machinist, employed by the road, is held on a charge of murder. The report says that Whitfield stole whisky from a car.

#### Roads Sign Wage Contracts With

##### Train and Engine Employees

Contracts covering wages and working conditions of train and engine service employees have been entered into by a number of Eastern roads. These contracts, in general, extend present wages and working conditions until September, 1923. Among the roads which have entered into these agreements with all or some of the classes mentioned above are the New York Central, the Pennsylvania and the Lehigh Valley. Conferences with representatives of the transportation brotherhoods and managements of a number of other roads are expected shortly. Settlements and negotiations looking toward settlements have been reported also from the West and South.

#### New York Central Contemplates

##### Premiums for Freight Train Employees

In addition to entering into a wage contract with its trainmen and conductors, the New York Central has announced that it is studying a plan whereby premiums will be paid to these employees in freight service for prompt movement of freight trains. The statement given out by the company follows:

A. H. Smith, president of the New York Central Lines, in direct conference with representatives of conductors and trainmen of the entire system, has concluded an amicable agreement whereby all matters of controversy now pending before the United States Railroad Labor Board will be immediately withdrawn. The settlement arrived at will remain in effect until Sept. 30, 1923.

Under the terms of the agreement a joint committee representing the employees and the management will be appointed to consider the question of compensating employees in the freight train service on a basis of paying premiums for prompt movement over the roads, as against slow movement, which results in the imposition of costs in the form of penalty overtime.

This proposal is an innovation in railroad operation and it looks toward economy and increased efficiency in freight movement from which notably good results are expected mutually for the managements and employees.

This direct settlement between the New York Central management and the employees marks the return to the former successful practice of adjusting difference in personal negotiations across the conference table.

It is anticipated that further direct negotiations will result in a similar agreement with the engineers, firemen and switchmen.

It has been in a spirit of keen realization of the existing extraordinary conditions in this country that the New York Central Lines management has directed its efforts in this settlement and is now approaching also a settlement of the shopmen's controversy. The country is entering a period of business revival and the stoppage of coal mining for five months requires that this vast tonnage be moved in an unprecedented short time. The farmer has large crops to sell and it is of prime importance that they be prompt in reaching the markets.

W. G. Lee, president of the Brotherhood of Railroad Trainmen, in commenting upon the wage agreement with the New York Central, said:

In July, 1920, a wage increase was granted the conductors, engineers, firemen and trainmen of \$1.04 a day. On July 1, 1921, the Railroad Labor Board reduced this increase 80 cents. At that time the carriers applied to the board for a further reduction, which would take away from the men the remaining 24 cents. This matter has never been heard by the board.

The action taken by the New York Central and the Pennsylvania today under the terms of the agreement means that they will at once withdraw this application from consideration by the Labor Board. As we are about to conclude similar agreements with all the roads of the country, the matter of a further wage cut will be entirely removed from action by this board. On the other hand we had a number of applications and requests before the board relative to working conditions and rules that were counter proposals to the wage cut request. These will be withdrawn. The letter withdrawing them is being written now.

Mr. Lee made another statement also to the effect that the railroads and unions were going back to the method of settling their differences by direct negotiation, rather than by interference from outside agencies. This statement was widely interpreted to signify that by direct negotiations for wage contracts the employees and the railroads were "ignoring" the Labor Board. The fact is that the Transportation Act provides for appeal to the Labor Board only when disagreements arise which cannot be settled by the parties thereto. The successful outcome of the negotiations between the train service unions and the railroads is in entire accord with the letter and obvious intent of the Transportation Act.



Photos by Kadel and Herbert

Interior Views of a French Railway Instruction Car, With Models Which Can Be Raised to Increase Seating Capacity



# Colorado Prepares New Plans for Moffat Tunnel

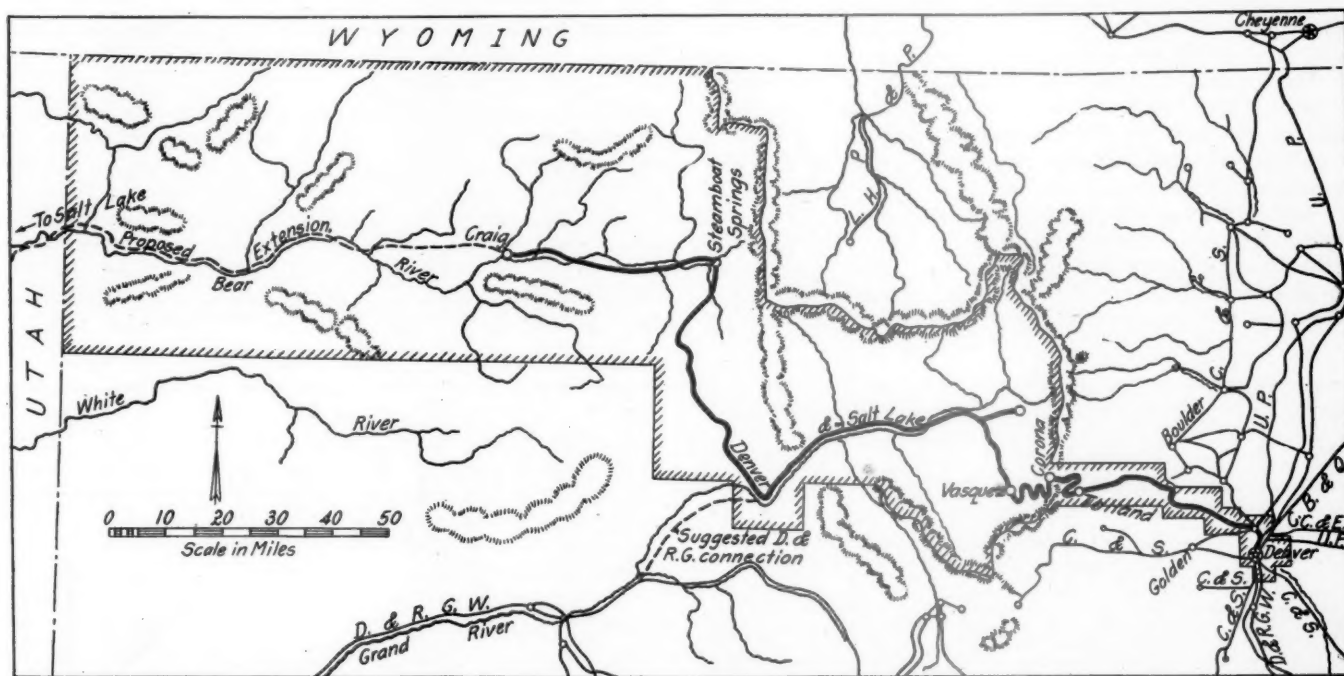
Creation of an "Improvement District" to Underwrite Bond Issue  
Now Being Tested in Courts

**A**NOTHER CHAPTER is now being written in the story of the long projected Moffat tunnel in Colorado, this time through the novel procedure of enacting legislation for the creation of an "Improvement District" embracing that part of the state assumed to be benefited by the improved means of communication to be afforded by the construction of this tunnel. A commission has been appointed, as provided in the statute, and a test case is now being carried through the Colorado courts for the purpose of determining the constitutionality of the law as a preliminary to the marketing of bonds.

The project to build this tunnel had its inception in the construction of the Denver, Northwestern & Pacific under the leadership of D. G. Moffat with a view to affording rail

erty has never enjoyed earnings that enabled it to command sufficient credit for the construction of the tunnel. Moreover, it has been conceded that without an improvement of the line which can only be made in this way, its extension to Salt Lake City is commercially impractical.

Extensive surveys have been made from time to time to determine the best location for the tunnel to relieve the adverse operating conditions of the railroad via the temporary line over the Corona summit, and have resulted in the location of a bore 6.4 miles long, with its eastern portal on the South Boulder watershed near Newcomb, Colo., and with its west portal on the Fraser river watershed two miles from the station of Vasquez, Colo. These surveys have determined the selected tunnel site to be the only one that exists at as



Outline of the Colorado "Improvement District" in Relation to the Location of the Denver & Salt Lake and Its Proposed Extension

transportation to the northwestern portion of Colorado and the eventual extension of the line to Salt Lake City. The line was chartered in 1902 and completed as far as Craig, Colo., in 1909. The chief obstacle in the construction of this line and what subsequently militated against its successful operation is the crossing of the continental divide about 65 miles west of Denver. A study of the physical conditions at the time of original location pointed to the need of a long tunnel at an elevation of about 9,100 ft. above sea level, but lack of funds led to the postponement of this feature of the project and the substitution of what was then considered a temporary line across the divide, having the summit at Corona at an elevation of about 11,500 ft., a length 23 miles greater than that of the tunnel line, four per cent grades and extremely heavy curvature. The physical characteristics of this summit location, coupled with adverse weather conditions, characterized by heavy snow storms at almost any season of the year, have made the operation of the line extremely difficult and as a consequence the prop-

low an elevation as 9,100 ft. directly west of Denver and for many miles north or south of the Moffat road.

The construction of this tunnel would eliminate all of the four per cent grades and the 16 deg. curves. It would save 2,500 ft. of rise and fall, some 8,000 deg. of curvature, and no portion of the road would be subject to the severe snow conditions.

Because the completion of an effective rail connection between Denver and Salt Lake City would place Denver on a direct transcontinental route and also afford convenient access to a large undeveloped portion of the state of Colorado, the people of the Colorado capital have long taken a special interest in the tunnel project. As a result of this, in 1913 the city voted to issue \$3,000,000 in bonds to pay two-thirds of the cost of the tunnel to be constructed by the railroad which had been reorganized at that time as the Denver & Salt Lake. However, the following year this bond issue was declared unconstitutional, making it necessary to search for other means of financing this project. In 1920

another plan was undertaken whereby the state as a whole was to underwrite the construction of this tunnel; to make the plan attractive to the people of other parts of the state, it included projects for the construction of two other tunnels through the continental divide, but this scheme also proved abortive.

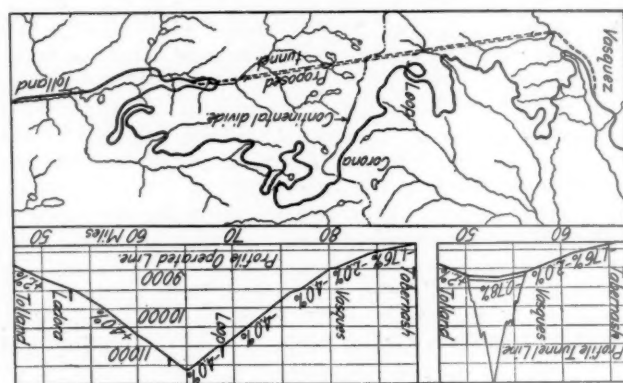
The present plan, which was the result of a law passed in May, 1922, provides for an improvement district modeled after the common form of taxing bodies organized for public improvements, such as irrigation, drainage, sanitation, etc. The justification in this case is stated in Section I of the statute as follows:

"It is hereby declared that to provide for an avenue of communication by means of a transportation tunnel through the continental divide at or near James Peak will reduce the barrier which now separates the western portions of this state from commercial intercourse with the eastern portion thereof, will facilitate communication all seasons of the year, will promote the health, comfort, safety, convenience and welfare of the people of the state of Colorado, and will be of especial benefit to the property within the boundaries of the improvement district hereinafter created."

The boundaries of the district are indicated on the map and include a large portion of the northwestern part of the state, tapering down into a narrow zone on either side of the Denver & Salt Lake, but including all of the city of Denver. Under the law, this district is to be managed by a board of five members to be elected at intervals of two years by "all persons holding real estate within the district who are citizens of the state of Colorado."

The law also provides specifically that the object of this organization is for the construction of a tunnel substantially in the location determined upon for the Moffat tunnel, but provides for no legal relationship to the Denver & Salt Lake other than to state that the approaches of the tunnel shall

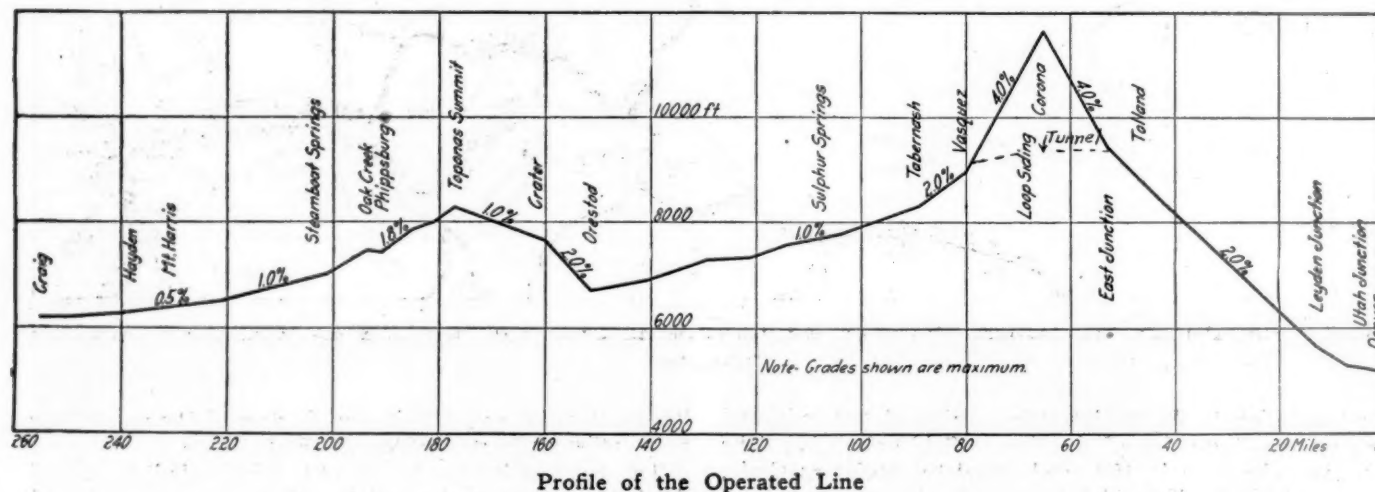
for levying assessments against the property in the Improvement District for any deficiencies in the funds available from the tunnel revenues. According to Section 19, the "tunnel, its approaches, equipment and appurtenances shall be owned perpetually by the Moffat Tunnel Improvement District, and shall remain forever a public improvement for public transportation and communication, and after the



Map and Profiles of the Present and Proposed Routes at the Location of the Proposed Tunnel

bonds which may be issued under the provisions of this act are fully paid, it shall then be maintained and operated as provided by law.

The board is also given the necessary power to provide for the employment of engineers, attorneys and other employees required in connection with the construction and operation of the tunnel, including the adoption of electric power, the construction of power plants, etc. W. G. Robinson is president of the Moffat Tunnel Commission and L.



Profile of the Operated Line

be constructed so that they may be used by standard-gage railroads. It also provides for the use of the tunnel for telephone and telegraph lines, for the transmission of water and the transportation of automobiles and other vehicles. The board is authorized to make leases or contracts with persons or corporations desiring to use the tunnel for periods not to exceed 99 years, with the specific proviso that no monopoly for the use of the tunnel or its approaches shall be granted to any one in connection with the granting of any such leases.

The estimated cost of the tunnel is indicated by the fact that the board is authorized to issue bonds to the limit of \$6,720,000, bearing interest at the rate of six per cent. Revenues from the use of the tunnel are to be applied against the interest and amortization of the bonds with provision

D. Blauvelt, former chief engineer of the Denver & Salt Lake, is chief engineer of the commission. Construction plans now under consideration imply no change in the location, grades or alinement of the tunnel from those determined upon when plans were prepared in 1914. It is expected that questions as to the constitutionality of the law will be definitely settled through a Colorado Supreme Court decision some time this fall and that with a favorable conclusion it will be possible to start active construction work in the early part of next spring.

THE ERIE has cancelled its contract with the Hornell Machinery Company which has been operating its shops at Hornell, N. Y., and at one or two other terminals.



# St. Paul Adopts Water Treatment on Large Scale

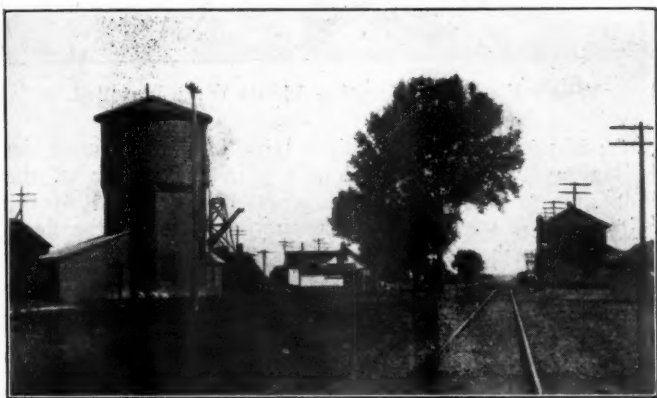
## An Installation of Fourteen Plants Results in an Economical Solution of Serious Operating Problem

By C. Herschel Koyl

Engineer Water Service, Chicago, Milwaukee & St. Paul

**I**N THE COUNTRY between Lake Michigan and the Rocky mountains, the Chicago, Milwaukee & St. Paul has more than 8,000 miles of steam-operated mileage; and because most of this is a country of less than average rainfall, with few streams and fewer lakes, the railroad is confronted with many water problems. The most difficult of these are east of the Missouri river in South Dakota, where the few streams run slowly through lands so rich in the soluble salts of

pound that could be used, this program of getting more water was supplemented by the establishing of water treating facilities at various points. Fourteen treating plants were installed in all, one each (on the main lines) at Sanborn and Rock Valley, Iowa, and at Canton, Lennox, Marion Junction, Bridgewater, Vermilion, Yankton, Scotland and Ethan, S. D.; and (on branch lines) at Tyndall, Avon and Platte, S. D. Treating plants having been installed previously at Sioux City, Iowa, and at Mitchell and Elk Point, S. D., this gave a total of 17 treating plants on the district, with a plant at every water station on the treated water district including about 400 miles of lines.



The Installation at Lennox, S. D., Typical of the Branch Line Plants

calcium and magnesium that the river waters are always hard, and the more the rainfall on adjoining lands and the higher the rivers, the harder the water.

### Quality of Water Bad

In that part of the country, because of the scarcity of water at or near the surface, most railroad supplies are derived from drilled wells, which vary in depth from 50 ft. to 1,500 ft. and in which the character of the water varies as widely. In the ground are two layers of sandstone whose horizontal cracks furnish the supply, the water from the lower sandstone being very hard (80 to 90 grains per gallon) and carrying also 20 to 60 grains of sodium sulphate or chloride, while the water from the upper sandstone so closely resembles the lower water after softening that it is presumed to be the same water softened in the ground, that is, by zeolitic action. At distances from 100 to 200 miles east of the Missouri river, the soft water rises to ground level and is used by the railroad, but near the river the water must be pumped from a depth of 300 ft. Since this soft water is both scarce and difficult to pump, we drill to the lower sandstone and get hard water which usually rises to ground level.

The problem confronting the road in this locality was one of getting more of this water (as bad as it is) and of accomplishing something in the way of improving it. To enlarge the supply, sand-proof wells were drilled at Sanborn, Iowa, and at Lennox, Plankinton, Yankton, Scotland, Tyndall and Platte in South Dakota. These wells range from 50 ft. to 900 ft. in depth and were completed last year.

Our experience with these waters for locomotive boilers having been very expensive, in spite of all the boiler com-

### The Plants Are of Two Kinds

The new plants are continuous in operation and are of two types of construction. All of the main line plants with the exception of those at Lennox and Bridgewater are designed to treat 15,000 gal. of water per hour continuously and consist each of a hard water pump; a 40-minute reaction tank within which the mixture of hard water and the necessary chemicals (all fed in continuous streams) is slowly



An Exterior View of the Plant at Scotland, S. D.

stirred by mechanical means; a three-hour settling tank; a treated water pump which delivers to the track tank; and a chemical storage room; all strongly housed and heated.

The plant at Scotland, S. D., illustrated in the drawings, is typical of the main line plants. Everything is of wood except the machinery and pipe. The drilled well, 12-in. by 168-ft., under the pump room furnishes water to a double-stroke deep-well pump which delivers it through a six-inch pipe to the water wheel which does the stirring. The water, after passing the wheel, flows to the bottom of the mixing tank where, as it rises, it meets in succession the continuous streams of milk-of-lime, sodium carbonate and ferrous sulphate solutions.

Hydrated lime is used in water treating to extract the carbonic acid, which brings about the precipitation of the scale-making limestone carbonates down to three grains per gallon or less. Sodium carbonate (soda ash) is used to re-

place completely the scale-making limestone sulphates by non-scaling sodium sulphate. Ferrous sulphate (green sulphate of iron) is used for the treatment of the last three grains of calcium carbonate so that it will not clog the injector or branch-pipe; this, by converting half of the calcium carbonate into calcium sulphate.

In these plants, these reagents are all fed by regulated streams of water from the pipe which supplies the water wheel. The milk-of-lime box, holding 480 gal. of water, carries in suspension in each case enough hydrated lime for a five-hour's supply (at Scotland 400 lb.) and this is fed continuously by a small stream of water entering at the bottom of the lime box and overflowing near the top through a two-inch pipe to near the bottom of the mixing tank. The drawing shows a lime pump at the top of the lime box, but it is there only for emergencies.

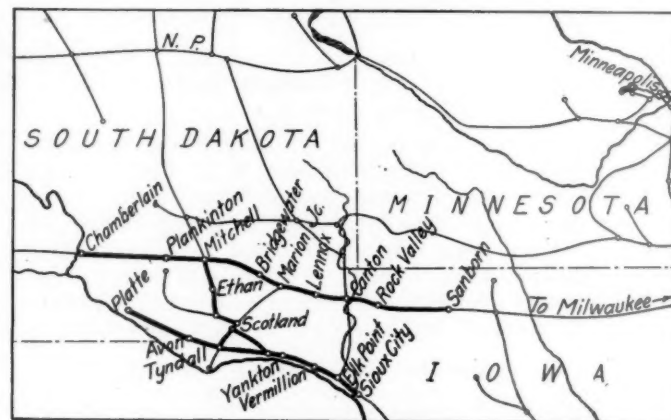
Once every hour, an hour's supply of dry hydrated lime is added to the supply in the box. This method produces an hourly variation in the rate of lime feeding, but the stirring in the mixing tank is so thorough and so prolonged (45 min.) that only a slight variation is found in the water as it overflows from the top of the mixing tank to the bottom of the settling tank.

The dry soda ash rests on a shelf in the soda box and is fed to the mixing tank by a spray. The supply on the shelf is replenished hourly. The sulphate of iron is fed in solution from its box by a small stream which enters at the bottom and overflows near the top.

The best method of feeding any reagent to a treating plant is determined principally by its solubility in water

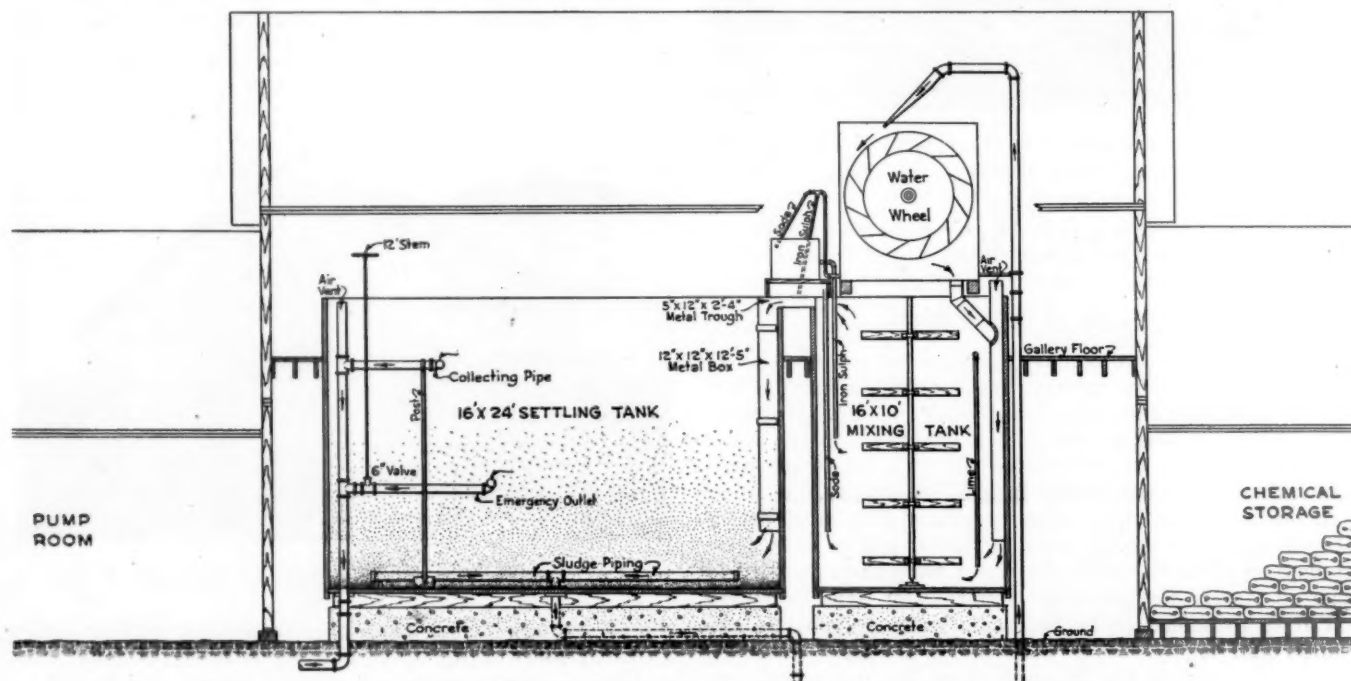
whence it is sent to the track tank. The two pumps in the pump room are operated by a 10-hp. oil engine, each pump having a clutch on the engine shaft.

The settling tank is freed of its accumulated sludge once daily by opening for 30 seconds the valves controlling the



Where the Water Treating Plants Were Installed

system of perforated sludge pipes lying in the bottom of the settling tank. The perforations are in the bottom of the sludge pipes, and the branch pipes are connected to the main pipes by street-ells so that they are close to the floor. The pump room and working rooms are heated by hot water



A Sectional View of the Plant at Scotland, S. D., Showing Arrangement of Piping and Tanks

and in all cases the thinner the solution or mixture the better. The arrangement of feeding devices described above is not theoretically perfect, but has been adopted as the result of experience in handling railroad plants which are frequently miles from a repair shop and are seldom operated by skilled mechanics. The uniformity of results is the best proof of the wisdom of the design and method.

The water, with its chemical reactions practically complete and its precipitate ready to settle, arrives at the bottom of the settling tank and there commences to leave its precipitate as the water slowly rises to overflow through the perforated collecting pipe to the treated water pump in the pump room,

pipes along the walls. The chemical storage room is of  $2\frac{1}{2}$  cars capacity.

#### Roadside Tanks Converted into Treating Plants

The plants at Lennox, Bridgewater, Avon, Tyndall, and Platte differ from the other plants in that, being smaller stations, the existing roadside tanks are utilized as settling tanks as well as storage spaces for water to be drawn off by locomotives. One of the illustrations gives an exterior view of one of these plants. In the plant the mixing tank is built inside the roadside tank and a small engine is installed below the tank to furnish the power to operate three small



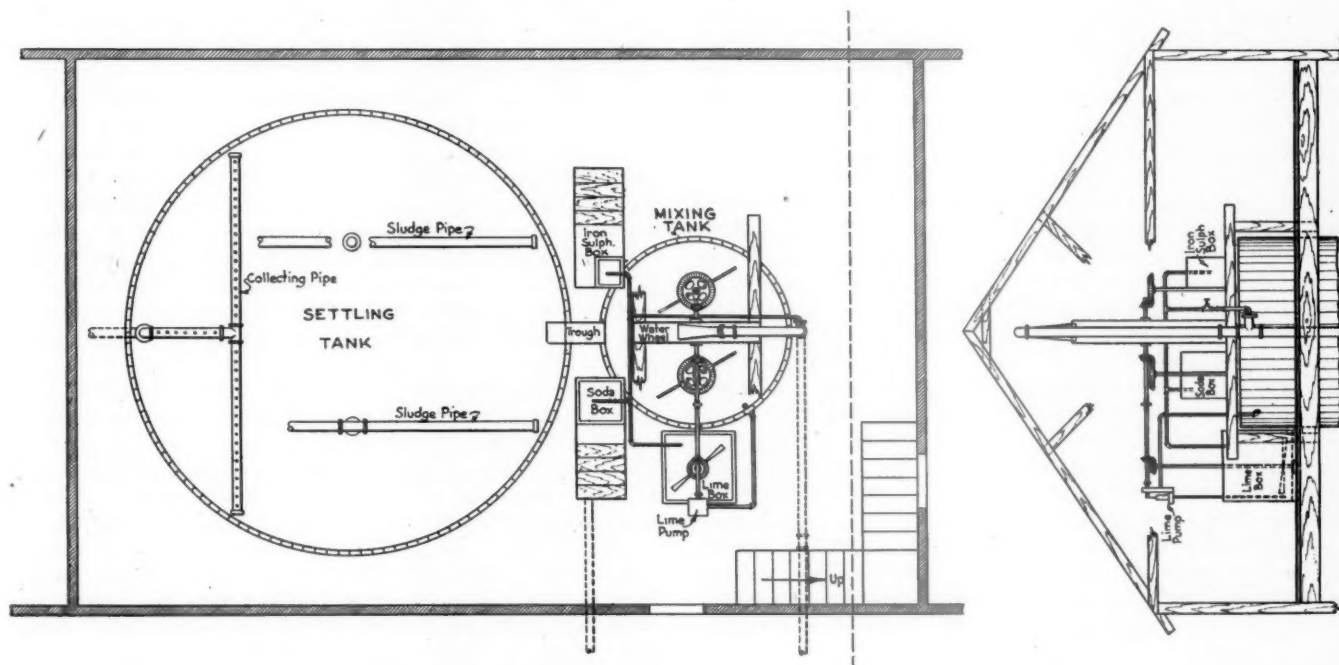
pumps which discharge the chemicals, each from a separate vat, into the untreated water. This engine also furnishes power to drive the agitator in the mixing tank. Under this arrangement the untreated water enters at the bottom of the mixing tank where it receives the chemicals and is stirred continuously as it rises to the top, flowing thence through an over-flow pipe to the bottom of the settling compartment. Water for filling locomotive tanks is then obtained from the top of the settling space by a pipe, the receiving end of which is buoyed up by a float. The housing around the base of the tank is equipped with a stove for heating purposes and is made large enough to store the requisite supply of chemicals.

### Plants Do Effective Work

At Scotland the well water has the general character of all the waters derived from that layer of hard-water sandstone (the upper layer of soft-water sandstone having run

necessary. Experience shows that slow and continuous mixing of the hard water with the chemicals for a period varying from 25 min. to 50 min., according to the temperature and cleanness of the water, is necessary to complete chemical action; and experience shows also that unless the softening plant is to be encumbered with filters (a very serious drawback to a railroad plant) other special precautions must be taken to insure the perfection of settling.

In the plants built last year on the Chicago, Milwaukee & St. Paul, the advantage of the 40-min. mixing tank with its continuous but slow stirring is that the precipitate is all formed and ready to settle when the water enters the settling tank, and there is none left to form just below the top of the settling tank when it is too late to settle. Another feature of construction insures a character of precipitate which settles easily. When the chemicals first meet the water the rapidity of chemical action is so great that the particles of precipitate formed are very large and tend to



Plan Drawing of the Treating Facilities and Sectional View of Mixing Floor

out a few miles away). Our laboratory analysis shows its dissolved mineral content as follows:

Calcium Sulphate .....	64.9	grains	per	gallon
Magnesium Carbonate .....	10.0	"	"	"
Magnesium Sulphate .....	11.8	"	"	"
<hr/>				
INCRUSTING SOLIDS .....	95.7	"	"	"
Alkali Sulphate .....	9.7	"	"	"
Alkali Chloride .....	2.6	"	"	"
<hr/>				
NON-INCRUSTING SOLIDS ..	12.3	"	"	"
TOTAL, DISSOLVED SOLIDS	108.0	"	"	"

The treated water analysis follows, it being understood that there are daily variations up to one grain per gallon due to lack of uniformity in the rate of pumping water or feeding chemicals:

Calcium Carbonate .....	3.3	grains	per	gallon
Sodium Hydroxide .....	0.8	"	"	"
Alkali Sulphate .....	92.0	"	"	"
Alkali Chloride .....	2.6	"	"	"

### Mechanical Mixing and Up-Flow Important Features

The chemistry of water softening is simple in both theory and practice when working on a small scale and with a filter, but when working on a large scale, where the resulting water must be settled instead of filtered, certain precautions are

settle quickly; but when the chemical work is nearly done and the few remaining molecules of carbon dioxide meet the few remaining molecules of calcium oxide, the particles of precipitate formed are so small that millions of them make only a bluish cloud which will float for hours and is the bane of water intended for boilers, because precipitate suspended in the water of the boiler is the cause of the foaming attributed to many treated waters.

These small particles, at the moment of coming out of solution (commonly called the nascent state), have great adhesive power and will attach themselves to any solid matter within adhesion distance. In the old way of feeding with a reaction tank at the top so that the flow was downward, the heavy precipitate had gone ahead and there was nothing for these last and very small particles to attach themselves to; but in the plants referred to, the hard water and the chemicals are introduced at the bottom of the reaction tank and flow upward, so that (since the precipitate lags behind the water) the reaction tank soon becomes and remains charged with a mass of precipitate to the full sustaining power of the upward flowing current, and these infinitesimal particles attach themselves to the older and larger particles as fast as they are born. The result is that the water flowing from the top of the reaction tank to the bottom

of the settling tank carries only comparatively few and large particles which settle rapidly and leave the water free from haze.

### The Plants Have Already Paid for Themselves

The treating plants were built by company forces at an expenditure of approximately \$18,000 for each of the larger plants and \$7,000 for the smaller ones. Since their installation (the last plant built being the one at Scotland, S. D., which was set in operation on January, 1922), our boilers have been free from scale and from leaking, and almost free from foaming. I know that there has been some foaming because sometimes one of those little rivers will change the character of its water 10 grains per gallon over night (from a rainstorm perhaps a hundred miles away, perhaps a week before) and sometimes something may go wrong in the plant and the water be under-treated, but when the treatment is correct there is little foaming.

Of course, we save in boiler repairs and coal, and we have a much superior service. As mentioned, the last plant has been in operation less than a year and the accounts are not yet made up, but the plants have paid for themselves (and will do so every year) in items of saving that can easily be calculated in dollars. Boiler repairs on the district are now almost nothing and during the entire strike period no boiler troubles attributable to water were reported on this district. Of interest in this connection, also, the statement was made at a recent meeting of master mechanics on the road that while previous to the installation of these plants, the boilers were always leaking, cases of buckled side sheets were frequent and three or four boiler failures occurred on the district every week, no leaking has been reported since the installation of the plants, no cases of buckled side sheets have arisen nor any boiler failures, and during the winter season not one engine was sent into the shop for heavy repairs, although it had been a customary practice before to send all power into the shop for this purpose annually.

We have much bad water on other divisions where traffic is more dense than on these, and it is true that the damage to a railroad from a bad water increases with the number of locomotives which use it, but the waters about Mitchell were so very bad and the difficulty of railroading so great that it was decided to utilize our 1920 money in that district.

### I. C. C. Issues New Service Orders

WASHINGTON, D. C.

THE Interstate Commerce Commission on September 19 issued its Service Order No. 25, applicable eastward from the west bank of the Mississippi river, which cancels and supersedes Service Order No. 23, effective at midnight September 20, 1922.

By reason of certain embargoes issued by carriers, the commission says, complaints have been made that various commodities, which in the public interest should be handled currently and promptly, have not been so handled. In addition to the commodities specified under Service Order No. 23, this order adds mine supplies, medicines, fertilizers, seeds, news print paper and petroleum and its products in tank cars to the list of commodities to be given preference and priority in movement, when carriers are currently unable promptly to transport all freight traffic offered to them for movement. The words "fuel oil" as used in Service Order No. 23 are changed to read "other fuels."

Service Order No. 23 directed all carriers to discontinue the use of open-top cars suitable for the transportation of coal for the transportation of commodities other than coal, so long as any coal mine remained to be served with such cars. There are extensive road-building projects with uncompleted gaps, which, in the public interest, should be

completed before cold weather sets in, and for which appropriations have been made by the States and by the Federal Government. There are large building programs under way which must be completed without undue delay to avoid serious loss. Service Order No. 25, therefore, permits the use of open-top cars suitable for the loading and transportation of coal, after the discharge of the coal lading, for the transportation of road and building construction materials, ore, mine supplies for current operation and fluxing stone for furnaces, when the destination of such commodities is in direction of, but not beyond the mine or mines to which such open-top cars are destined for coal-loading, and when such use will not materially delay or minimize the production and transportation of coal. Carriers are directed to place an embargo against the further placement of open-top cars for loading with such commodities for any shipper who shall fail or refuse to load the open-top cars within 24 hours after placement for such loading and are directed to place an embargo against any consignee who shall fail or refuse to unload such cars within 24 hours after placement.

The order further cancels the priority afforded consumers which was embraced in Class 2 in Paragraph 7 of Service Order No. 23. "The production of bituminous coal has increased to approximately nine and one-half million tons per week, and should," the commission's notice to the public says, "with reasonable use, take care of current needs, if panic, undue storage and waste of fuel and equipment are carefully avoided. The commission, therefore, feels that it can now relax its previous order by omitting general priorities by classes of consumers, reserving, however, the right in special cases of great emergency to direct carriers to furnish any coal mine with such open-top cars as may, in the public interest from time to time, be designated by it or its agent therefor. By virtue of the general priority which is given both to movement and use of open-top cars for coal, the effect of the change now made is to advance all coal into the priority class, instead of only those classes of consumers formerly embraced in the priority designations. While it was necessary during the period of extremely limited production to give priority in use to certain highly essential classes, this necessarily involved deferring others. Under existing circumstances, it is believed that the course now taken will tend to a considerable improvement in the production of coal by facilitating its movement and general distribution. It will be necessary, however, to avoid a return to priority classifications, for continued efforts looking to the avoidance of overstocking, of delay to equipment, and to the curtailment of demand to meet bare daily necessities until the reserve of coal in circulation can once more be built up."

This cancellation of the classified list of preferred consumers was recommended at the conference of railroad and business men called by Secretary Hoover and the Chamber of Commerce of the United States last week.

Service Order No. 24, which required carriers west of the Mississippi river to afford priority in movement to certain commodities, and for the return movement of empty cars for such loading, has also been amended to correspond with Service Order No. 25, applicable in Eastern United States. Service Order No. 22, as to routing of freight to avoid congestion, remains in effect.

Service Order No. 25 reads as follows:

*It appearing*, In the opinion of the commission, that an emergency which requires immediate action exists upon the lines of each and all the common carriers by railroad subject to the Interstate Commerce Act, east of the Mississippi river, including the west bank crossings thereof, and because of the inability of said common carriers properly and completely to serve the public in the transportation of essential commodities, *It is ordered and directed*, that effective September 21, 1922, and until the further order of the commission:

1. That each such common carrier by railroad, to the extent that it is currently unable promptly to transport all freight traffic offered to it for movement, or to be moved over its line or lines of railway shall give preference and priority to the movement of each of the following commodities: Food for human consumption, feed for live stock, live stock, perishable products, mine supplies, medicines, fertilizers, seeds, news print paper,



coal, coke and other fuel, and petroleum and its products in tank cars.

2. That to the extent any such common carrier by railroad is unable under the existing interchange and car service rules, to return cars to its connections promptly, it shall give preference and priority in the movement, exchange, interchange and return of empty cars intended to be used for the transportation of the commodities specially designed in paragraph numbered 1 hereof.

3. That any and all such common carriers by railroad which serve coal mines whether located upon the line or lines of any such railroad or customarily dependent upon it for car supply, herein termed coal-loading carriers, be, and they are hereby, authorized and directed whenever unable to supply all uses in full, to furnish such coal mines with open-top cars suitable for the loading and transportation of coal, in preference to any other use, supply, or distribution of such cars; provided, that the phrase "open-top cars suitable for the loading and transportation of coal" as used in this order shall not include or embrace flat (fixed) bottom gondola cars with sides 42 inches or less in height, inside measurement, or cars equipped with racks, or cars which, on July 1, 1923, had been definitely retired from service for the transportation of coal and stenciled or tagged for other service.

4. That all such common carriers by railroad other than coal-loading carriers, herein termed non-coal-loading carriers, be, and they are hereby, authorized and directed to deliver daily to a connecting coal-loading carrier or carriers, or to an intermediate non-coal-loading carrier for delivery through the usual channels to a coal-loading carrier, or carriers, empty coal cars up to the maximum ability of each such non-coal-loading carrier to make such deliveries and of each such connecting coal-loading carrier to receive and use the coal cars so delivered for the preferential purposes herein set forth.

5. That all such common carriers by railroad be, and they are hereby, authorized and directed to discontinue the use of open-top cars suitable for the loading and transportation of coal, for the transportation of commodities other than coal, so long as any coal mine remains to be served by it with such cars; and as to each non-coal-loading carrier, so long as deliveries of any such cars to connecting carriers may be due or remain to be performed under the terms of this order; provided, that such open-top cars suitable for the loading and transportation of coal, after the discharge of the coal lading thereof, may be used for the transportation of road and building construction materials, ore, mine supplies for current operation and fluxing stone for furnaces when the destination of such materials is in the direction of the mine or mines to which such open-top cars are destined for coal loading, and when such use will not materially delay or minimize the production and transportation of coal; provided, further that an embargo be placed against the further placement of open-top cars for loading with such commodities for any shipper who shall fail or refuse to load the open-top cars within 24 hours after placement for such loading thereof.

6. That all such common carriers by railroad be, and they are hereby, authorized and directed, to place an embargo against the receipt of coal or other freight transported in open-top cars suitable for coal loading, by any consignee, and against the placement of such open-top cars for consignment to any consignee, who shall fail or refuse to unload such coal or other freight so transported in coal cars and placed for unloading, within 24 hours after such placement, until all coal or other freight so transported in coal cars and so placed has been unloaded by such consignee and shall notify the commission of such action. This authorization and direction as to embargoes shall not interfere with the movement of coal to tide-water or the Great Lakes for transshipment by water, nor shall it apply where the failure of the consignee to unload is due directly to errors or disabilities of the railroad in delivering cars.

7. That in the supply of cars to mines upon the lines of any coal-loading carrier, such carrier is hereby authorized and directed, to place, furnish, and assign such coal mines with open-top cars suitable for the loading and transportation of coal for such special purposes as may from time to time be specially designated by the commission or its agent therefor by special priority direction in writing, in preference and priority to any other use; provided, that the open-top cars so placed, furnished, and assigned, shall after loading be transported for the special purposes designated, and shall not be subject to reassignment or diversion except by and with the approval of the commission.

For the more prompt and effectual administration during the present emergency of the authorizations, directions and requirements of this paragraph No. 7, the following persons are designated and appointed as agents of the commission, with authority to give directions as to car service and to the matters referred to in paragraphs (15 and 16) of section 1 of the Interstate Commerce Act, and referred to in paragraph No. 7, viz: John C. Roth, director, E. H. DeGroot, Jr., assistant director, Frank C. Smith, chief inspector, and B. S. Robertson, service agent, of the Bureau of Service of the commission, and the directions so given by them shall be regarded as directions of the commission.

8. That all rules, regulations and practices of said common carriers by railroad with respect to car service as that term is defined in said act are hereby suspended so far as they conflict with the direction hereby made.

9. That Service Order No. 23, as amended, be, and the same is hereby, suspended and superseded, effective at midnight September 20, 1922.

10. That copies of this order be served upon the carriers hereinbefore described, and that notice of this order be given to the general public by depositing a copy hereof in the office of the secretary of the commission at Washington, D. C.

By the commission, division 5.

### Inquiry Into Erie's Embargo of California Perishables

An inquiry into the embargoes issued last week by the Erie and other anthracite-carrying railroads against the receipt from their connections of certain classes of perishable freight in order that they might give preference to anthracite coal, although food-stuffs are also given priority in the

Interstate Commerce Commission's service orders, was instituted by Division 5 of the commission at a conference in Washington on September 14. The representatives of the railroads were asked to give an explanation for their action in issuing the embargoes and what the commissioners apparently considered a substitution of the judgment of the railroad for its judgment as expressed in the service orders.

H. A. Taylor, general solicitor, and A. E. Ruffer, transportation manager, of the Erie, explained that the condition of their motive power was such that the Erie was moving only about 75 per cent of a normal traffic and that a large part of the freight shipments which had been embargoed consisted of wine grapes from California which had been shipped in such a condition as to indicate that they were intended to be crushed into grape juice and serve as a substitute for the product of California which formerly was transported in tank cars. Mr. Taylor said that the shipments of grapes have greatly increased and constitute 42 per cent of the fruit and vegetable traffic handled by the Erie. He brought out these facts to show that the embargo was not intended to hold back essential food products, to which the priority order was presumably intended to apply, and in reply to a question as to what changes the railroad would recommend in the commission's service order, Mr. Taylor suggested that this class of grapes be excluded from the list of perishable freight.

W. E. Jenney, vice-president and general counsel of the Delaware, Lackawanna & Western, said that that road had issued its embargoes to prevent the diversion of fruits, vegetables and live stock to its rails for delivery at New York, because it had no facilities for handling those classes of traffic. Reference was also made to a conference between representatives of the Erie and the Pennsylvania, which was expected to result in the Pennsylvania taking some of the fruit traffic the Erie could not handle. Representatives of the fruit and vegetable shippers who attended the conference were vigorous in their protests against the embargoes. C. M. Shaeffer, chief of transportation of the Pennsylvania, expressed the personal view that to rescind the commission's Service Order No. 23 would do much toward helping the railroads handle their traffic as the observance of priority regulations tends to cause delay.

### Erie Removes Embargo

Following the inquiry, the Erie removed its embargo against shipments from California. It retains, however, its embargo against diversions of traffic from other lines— which embargo is similar to that of a number of Eastern roads.

### Anthracite Production Increases

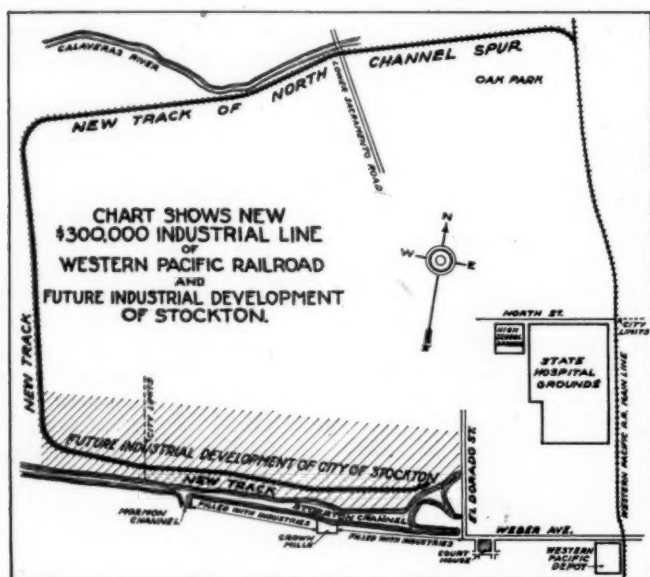
Although more than a week has elapsed since the resumption of anthracite mining, production has not gained full headway as yet. The Lackawanna loaded 713 cars on September 19, but it is hoped that this figure can in a short time be brought up to 1,000 cars a day. On the same day the Lehigh Valley handled 41,248 tons—a total which exceeded that of last year, but the road hopes to increase this loading materially. Loadings of other anthracite carriers show considerable increases during the week, but on none of them has production apparently reached its maximum. The attainment of maximum production in the anthracite fields is watched with interest, because probably not until it is achieved will the traffic on Eastern roads reach its peak.

CATTLE SHIPMENTS from Alberta to the United States are reported as unusually heavy because of the desire to avoid paying the prospective high duties of the United States tariff. During August nearly 10,000 head were shipped from Calgary alone, whereas during July, August and September of last year only 1,136 head were shipped.

## Western Pacific Plans New Industrial Section

**A**CTIVE CONSTRUCTION operations have been begun by the Western Pacific in the development of what is expected to become the leading industrial section of Stockton, Cal. The company has secured all necessary rights and franchises and has complied with all legal requirements for the construction of over six miles of industrial trackage in and adjoining that city. Contracts have been let to the Utah Construction Company, nearly all of the right of way has been bought, and before the seasonal rains of the winter months have set in, the company hopes to have the initial trackage of about six miles, laid and ready for ballasting.

The Western Pacific, in starting this improvement, secures access to the north side of Stockton channel with its navigable water, for a distance of about 10,000 ft. It also gains access to several square miles of level land admirably located for industries. With one operation the Western Pacific is placed in a position to create a great manufactur-



ing district and a freight terminal adequate for a city several times the present size of Stockton.

The heart of the retail section of Stockton is embraced in the district shown on the accompanying chart between the Western Pacific station and the Court House. Stockton is famous on the Pacific Coast for its manufacturing industries. Three large tractor manufacturing companies are located there. It also has a well developed flour milling business, many clay working concerns, glass and paper industries, and others of varying nature. It is served by the Western Pacific, the Southern Pacific and the Santa Fe and by three interurban electric lines.

Its water front activities, at present, are along the south side of Stockton channel, and to a less extent along Mormon channel, the point of intersection of which with Stockton channel is shown on the map. All three of the steam lines have access to the south side of the channel to a greater or less degree. The north side of the channel, to which the Western Pacific gains access, is to all intents and purposes not now in use.

The Western Pacific calls this new project the North channel spur. As planned by Col. J. W. Williams, chief engineer, and Thomas L. Phillips, construction engineer, the new track leaves the main line over two miles north of the present passenger station. The track goes westerly for more

than two miles, then turns almost due south for something less than two miles, and then turns almost directly east for, as stated, about 10,000 feet. On this final portion of the spur, the tracks will be laid from 100 to 200 feet from the water line, enabling connection to be made with water facilities wherever desired.

In planning this spur, or industrial track, the Western Pacific followed in principle the theory which was adopted when the road built its belt line around the city of San Jose, Cal. The San Jose belt line comes into that city along its eastern side, then turns around the southern side, and then turns along the western side of the city, the total length being nearly six miles. The North channel spur does not enclose Stockton on three sides, but it does enclose or reach several square miles of virgin territory, and gives the Western Pacific access to a valuable piece of undeveloped water front property.

## Coal Production

WASHINGTON, D. C.

**T**HE TOTAL production of all coal, anthracite and bituminous, in the week ended September 16 was estimated by the Geological Survey on Saturday at 10,200,000 to 10,500,000 tons.

Final returns on soft coal production in the week ended September 9 show 8,756,000 tons which, although less in the aggregate than for the week before, was at a higher daily rate, the holiday (Labor Day) considered. For the week of September 11-16 the output of bituminous coal is not expected to exceed 9,500,000 tons. Over the three weeks' period following general resumption of mining under the Cleveland agreement production has been at a rate less than 9,500,000 tons a week.

Mining of anthracite under the Philadelphia agreement began on Monday, September 11, and gained headway rapidly during the week. Production was between 900,000 and 950,000 net tons.

The following statement of cars of bituminous coal loaded shows the trend of output, day by day. Loadings on Monday, September 11, were 35,808 cars, a larger number than reported for any day since March, and gave promise of large production during the week, but the decline which has usually developed during the week was more marked than in preceding weeks. On Tuesday, loadings dropped to 30,786 cars and on Thursday were down to 26,923 cars. These figures indicate a total output for the week of between 9,300,000 and 9,700,000 tons.

	1st week	19th week	20th week	21st week	22nd week	23rd week	24th week
Monday .....	11,445	16,229	15,703	18,601	30,662	9,753	35,808
Tuesday .....	11,019	13,729	13,032	17,801	28,197	33,645	30,786
Wednesday .....	11,437	13,368	12,531	18,524	28,641	31,044	28,865
Thursday .....	11,090	13,277	13,521	19,388	28,687	28,274	26,923
Friday .....	11,296	13,539	13,718	22,882	27,040	28,477	.....
Saturday .....	8,888	11,009	13,524	23,070	25,517	27,476	.....

"Transportation is the dominant and limiting factor in soft coal supply," says the Geological Survey bulletin. "Restricted by transportation difficulties the rate of soft coal production is seemingly fixed temporarily at 1,600,000 tons a day, or 9,600,000 tons a week—this in spite of a strong market and prices sustained at high levels not only by demand for current consumption but also by the need for rebuilding ordinary reserves and by extraordinary call for household sizes."

Total production of bituminous coal for the calendar year to September 9 was 241,676,000 tons, as compared with 269,836,000 last year.

Loadings of anthracite on Monday, September 11, were 928 cars; on Tuesday they were 1,783 cars; on Wednesday, 3,258 cars, and on Thursday, 4,024 cars. When the mines are in full production loadings average about 6,000 cars



a day. In the last week of the anthracite strike only 1,018 cars were loaded, practically all of which was steam sizes dredged from the rivers. The total output was 53,000 tons, against 1,483,000 in the corresponding week a year ago.

At the close of the 23-week strike the cumulative output since the beginning of the calendar year was 22,255,000 tons, against 64,285,000 tons in 1921. The present year is therefore 42,030,000 tons behind last year.

Stocks of anthracite are very low. The reserve on the Lake Superior docks on September 1 was only 23,833 tons against 120,384 tons on the same date of 1921. Stocks of retail coal merchants in Massachusetts on August 15 were the lowest on record in the last three years and equivalent to but three per cent of the year's requirements.

Soft coal shipments from the mines to Lake Erie ports, under stimulus of priority orders increased 55 per cent during the week ended September 10 over the preceding week. The Ore and Coal Exchange reports a total of 717,226 tons dumped as against 463,242 the week before. Of the total 682,724 tons were cargo coal and 34,502 tons were vessel fuel. The rate of dumpings was 58 per cent greater than that in the corresponding week a year ago, but 21 per cent behind the rate in the corresponding week of 1920. The total quantity of cargo coal forwarded during the present lake season now stands at 6,019,999 tons, but of this 908,251 tons have gone to destinations not ordinarily taking lake coal. The quantity sent to regular lake markets was only 5,111,748 tons as against 16,650,153 tons in 1921 and 12,201,266 tons in 1920.

In the following table coal shipments on September 11, 12 and 13 are compared with the average daily shipments for the weeks ended August 26, September 2, and Sept. 9.

The total shipments on Monday, September 11, were the largest recorded for any day since March. General increase was shown for all of the coal-producing districts as compared with shipments during the preceding week. On Tuesday and Wednesday, however, shipments from a majority of the districts declined to levels below those of corresponding days during the preceding week.

In Pennsylvania, shipments have decreased slightly and on Wednesday were at the rate of about 400,000 tons daily. In northern West Virginia, output has decreased notably, principally on account of transportation difficulties. The same condition was shown by Wednesday's shipments in Ohio, Indiana and Illinois.

In the non-union fields of the middle and southern Appalachian regions the coal output continues to be greatly reduced by railroad disabilities. This is strikingly shown by the great drop in mid-week shipments as compared with shipments on Monday which were comparatively large because the Sunday holiday enables the roads to make temporary recovery. In the region immediately west of the Mississippi river there was a small increase in shipments.

In Colorado, shipments last week were larger than during preceding weeks but the large gain on Monday was not maintained on Tuesday and Wednesday. Other western states show similar changes.

### Coal Prices and Distribution

Belief that the natural processes of increased supply, provided distribution is facilitated, will bring down the price of bituminous coal, and assure complete supplies to the householders and industry, a definite pledge on the part of commercial interests to aid expediting those natural processes, and determination on the part of the government that advantage shall not be taken of the recent strike in an effort to exact high coal prices from the public were evidenced at the conference on the bituminous coal situation on September 15 at the Department of Commerce. Officials of the United States Chamber of Commerce, the American Railway Association, the National Association of Manufacturers,

the National Association of Purchasing Agents, and the public utilities associations met with the Secretary of Commerce, H. Foster Bain of the Department of the Interior, and C. B. Aitchison, of the Interstate Commerce Commission.

It was agreed that the mines had ample capacity, even to the point of surplus, to meet the situation, that the problem

### DAILY SHIPMENTS OF SOFT COAL FROM PRODUCING DISTRICTS

Net tons, assuming 50 tons to the car, based upon records of cars loaded, as reported by the railroads to the American Railway Association

District	Average wk. ended Aug. 26	Average wk. ended Sept. 2	Average wk. ended Sept. 9	Monday Sept. 11	Tuesday Sept. 12	Wed'sday Sept. 13
Central Pennsylv..	75,958	141,225	129,250	157,400	156,150	153,000
W. Pa., incl. Free.	39,325	61,292	90,000	115,900	117,900	118,000
G'burg-Westmore..	39,425	44,225	46,192	55,150	50,150	45,500
Connells. & Somers-Meyersdale..	58,742	59,750	60,800	67,200	63,030	68,750
S. Fork & Wind.	8,042	14,842	14,633	18,700	19,250	16,750
Total Pennsylv..	221,492	321,334	340,875	414,350	406,500	402,000
Georges Cr., Up. Poto. & Cumb. Pied. ....	14,883	15,017	10,700	14,000	10,650	13,000
F'mont & W. Va. Panhandle ...	87,191	100,383	98,034	139,000	125,400	120,650
Coal and Coke...	8,858	6,217	7,092	4,350	5,400	6,650
Kan. & Coal Riv.	18,092	20,750	13,975	31,400	16,350	20,000
Logan .....	27,225	26,708	27,100	28,600	32,100	24,000
New River (C. & O.-N. R. Div.)	19,367	18,642	17,558	21,050	16,800	14,000
Wind. Gulf (Vir.)	17,383	18,825	14,683	32,150	15,000	14,500
Poca. & Tug Riv.	71,067	67,583	49,408	61,350	59,750	45,100
Kenova-Thacker..	27,400	26,308	22,675	37,950	19,800	7,650
Total W. Va. & Md.	291,466	300,433	261,225	369,850	301,250	265,550
Eastern Kentucky	51,733	51,467	50,875	78,900	37,300	58,000
Western Kentucky	59,258	42,975	32,825	43,900	31,350	28,700
Tennessee .....	16,800	14,492	13,567	21,600	14,900	8,550
Clinch Val. & S. W. Virginia....	22,475	21,433	21,792	32,800	25,500	18,700
Alabama & Georgia	50,842	44,166	44,833	62,000	59,050	56,000
Ohio .....	94,408	115,508	109,350	144,950	124,850	110,000
Indiana-Illinois ..	79,308	330,008	275,208	411,350	337,400	310,000
Michigan .....	1,475	3,892	3,592	4,800	4,050	5,100
La., Mo., Kan., Okla., Ark., & Texas...	19,675	51,508	60,850	81,700	78,700	86,000
Colorado .....	34,525	29,167	24,375	33,850	30,650	30,000
New Mexico .....	6,034	7,225	9,683	10,950	9,700	9,500
Utah .....	16,783	16,458	16,150	24,000	17,850	16,400
Mont., Wyo. & N. Dak. ....	10,584	40,151	39,792	53,700	49,600	43,900
Washington .....	3,708	3,983	4,200	8,000	7,900	5,400
Total, E. of Miss. River .....	889,257	1,245,708	1,154,142	1,584,500	1,342,150	1,262,600
Total, W. of Miss. River .....	91,309	148,492	155,050	212,200	194,400	191,200
Grand total bit. shipped .....	980,566	1,394,200	1,309,192	1,796,700	1,536,550	1,453,800

was wholly one of transportation, and that the price would ameliorate if transportation could be increased and if consumers would purchase only for their immediate needs.

The conferences voted to organize voluntary campaigns for three major purposes:

1. To induce manufacturers, utility corporations, and buyers generally not to purchase coal beyond their day-to-day needs until the flow of coal becomes more normal.

2. To persuade holders of coal contracts not to call for delivery on those contracts past their day-to-day needs. It was considered that about one-half of the coal in the country is under contract at normal prices and that a relaxation in the demand for this coal to the minimum daily requirements would allow an increase in supply to the general public.

3. To expedite the movement of coal in every way.

The co-operation of the responsible coal operators in these matters will be sought.

The question of priorities in coal movement was discussed at great length, it being the consensus of opinion of the meeting that more mobility would be given to movement with less opportunity for speculation if the priorities to special uses, which have been necessary prior to the reopening of the union mines, should be relaxed and priority parallel with agricultural produce should be given to the movement of all coal without discrimination as to consignees. It was also pretty generally the opinion of the meeting that all reconsignment rights upon coal should be abolished in order to prevent speculation in coal.

## General News Department

**The Railway Fire Protection Association** will hold its annual meeting at Willard Hotel, Washington, D. C., on October 17, 18 and 19.

**The Senate** on September 19 agreed to strike out of the rivers and harbors appropriation bill provisions for the purchase of the Cape Cod and Dismal Swamp canals.

**Persons Going Up** in aeroplanes, from New York City, mostly or wholly for amusement or recreation, are said to have numbered, in the week ending on September 16, no less than 574. It is said that a group of 15 persons may now take a flight over the city, lasting 15 minutes, for \$3.50 each.

**The Michigan Central** reports that its automobile loadings from Detroit plants this year have far exceeded all past records, a total of 55,045 carloads in the first eight months this year, as against 25,724 in the same period of 1921, an increase of 114 per cent. August, 1922, was the banner month of history, with loadings of 8,557 carloads.

**A Fire** at New Orleans, La., on September 16, destroyed extensive wharves and warehouses belonging to the Federal Government and used, under lease, by the Louisiana State Dock Board. The fire is said to have started in a carload of bagging, and 40 loaded freight cars were included in the property destroyed. The total loss was estimated at \$5,000,000.

**The Railroads of Georgia**, by a law recently passed in that State, are allowed to issue annual passes to sheriffs and deputy sheriffs, one of each in each county. According to a statement made by a member of the Public Service Commission, it appears that this law is designed to accommodate the sheriffs when they are engaged in transporting criminals.

**Pensions Paid by the New York Central** to superannuated employees during the current year will amount to \$1,083,000 which is nearly double the total amount thus paid in 1916. This total includes the payments of the constituent companies, and the total prior to 1922 amounted to \$7,018,486. The number of pensioners on the roll at the beginning of 1921 was 2,771, a number which is about two per cent of the total forces employed.

**A Delegation** of Canadian railway officers conferred on September 20 with the Interstate Commerce Commission and officials of the Car Service Division of the American Railway Association in an effort to obtain the return of a large number of Canadian box cars now on American lines to the Canadian roads in order to relieve a severe car shortage in Eastern Canada. It was estimated that approximately 30,000 Canadian cars are held on American roads.

**In the Federal Court at Memphis, Tenn.**, on September 18, Jacob Cohen, editor of the Labor Review, was sentenced to six months' imprisonment and to pay a fine of \$1,000 for violation of the injunction against interfering with railroad operation or abusing railroad employees. Cohen had published an article referring to men employed in places of strikers as "loathsome and scurrilous scabs." Another Memphis editor has been arrested on a similar charge.

**The Shopmen of the Central of Georgia** have organized two unions, one the Central of Georgia carmen's organization and the other the Central of Georgia metal trades' organization. C. O. Voss, of Savannah, is chairman of the carmen and W. J. Bice, also of Savannah, a boilermaker, is chairman of the metal trades. It is said that the new unions have already made contracts with the railroad company, which conform to the rulings of the United States Labor Board.

**Radiophones**, for transmitting news and other matter to passengers, are to be introduced on one of the fast trains of

the Louisville & Nashville running between Cincinnati and New Orleans, successful experiments having been made with apparatus on a train which was run out of Louisville on September 13. The apparatus worked all right while the train was in the tunnel beneath Muldraugh's Hill, 300 ft. below the surface of the earth. This hill is said to contain a large percentage of iron.

**Hearings** before the House judiciary committee on impeachment charges instituted by Representative Keller against Attorney General Daugherty partly on account of his action in obtaining the injunction against the railroad shop unions, were postponed by the committee on Monday until the next session of Congress in December. Chairman Volstead said that this was because Mr. Keller had refused to produce or submit other than general evidence and that time should be allowed for the attorney general to appear in his own behalf.

**The Alaska Railroad**, since July 1, has been running a through passenger train twice a week between Seward and Nenana, 412 miles, making the trip in less than 24 hours, with a regular connection from Nenana to Fairbanks; but, according to news despatches, the result in tourist travel has been disappointing. General tourist travel to other sections of Alaska has been good throughout the season but it is claimed that the older routes have been very active in their solicitation of business and it appears that they have had much success in retaining their traffic. The new train has sleeping and dining accommodations.

### Steel Car Design and Construction

John A. Pilcher, mechanical engineer of the Norfolk & Western, will present a paper entitled, "The Design and Building of Steel Freight Car Equipment" at the meeting of the Railway Club of Pittsburgh, in the English Room of the Fort Pitt Hotel, Pittsburgh, on Thursday, September 28, 1922, at eight o'clock.

### Chicago Has Tag Day for Shop Strikers

After two weeks of strenuous effort, which included the calling of a special meeting of the city council, S. W. Govier of the Chicago Board of Aldermen succeeded in having a permit issued for a city-wide tag day on September 20, to benefit the striking railroad shopmen, their wives and children. "I know the city has an ordinance providing for only three tag days a year, but we have given generously for the aid of stricken people in foreign lands, and we can stand one more tag day to take care of our fellow citizens here at home," Mr. Govier declared.

### Newspaper Investigates Shipping Conditions

The Chicago Tribune last week conducted a business survey throughout the central western states to determine how the railroads were serving the shippers. In a full page advertisement under the caption: "Here is What Shippers Say About the Railroads" parts of 53 letters were reprinted of which 37 stated the service to be very good and 12 fair, while only four considered the efforts of the carriers a complete failure. The Tribune believes that the business conditions in the central west are generally good and that the railroads are furnishing adequate and satisfactory service.

### D. & R. G. W. to Spend Over \$23,000,000

A rehabilitation program involving the expenditure of \$23,792,511 for improving the Denver & Rio Grande Western was requested of C. E. Herrington, special master recently appointed by the United States District Court at Denver. The attorney for the railroad, who presented the above plan to the Federal Court,



stated that the expenditure is necessary to make up deferred maintenance costs and to bring the road up to the advancing requirements of a rapidly developing territory. The budget includes as its largest item \$15,314,376 for additions to the fixed property. This item includes \$6,132,000 for new rails and \$2,736,900 for new shops. Other main divisions of the budget are \$6,226,283 for new rolling stock and \$2,251,859 for improvements to existing equipment.

### Coroner's Jury Reports on P. R. R. Car Shop Fire

The fire at Pittsburgh, Pa., on September 3, in which seven employees of the Pennsylvania Railroad were burned to death in their lodging room, has been investigated by a coroner's jury and a verdict was rendered on September 13 to the effect that the origin of the fire could not be discovered. The verdict censures the officers and employees of the railroad company for housing 25 men in a building containing a large quantity of inflammable material, including oil-soaked waste and petrolite; for making changes to convert this shop or storehouse into lodgings without securing a permit from the city, and for maintaining an exit stairway too narrow. The verdict also said that the railroad company had fire-fighting equipment in and near the building but had no efficient organization for handling the apparatus.

### Great Western Installs Motor Car Service

A two-unit motor train, consisting of a passenger motor car and a trailer, was placed in service on September 18 by the Chicago Great Western on its line between Des Moines, Ia., and Marshalltown. Interest was attached to the inauguration of this

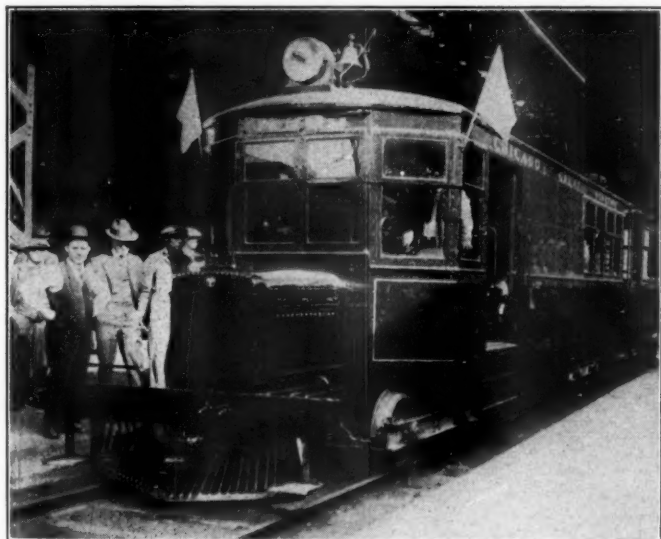


Photo by International

### Ready for the Initial Trip

service for the reason that this type of equipment was an innovation in Iowa railroading. A number of Great Western officers and others made the initial trip, leaving Des Moines on Monday morning and reaching Marshalltown by noon that same day.

### Adding Insult to Injury

According to the Macon (Ga.) Telegraph more than \$600 and some watches and jewelry were stolen from the occupants of the Savannah sleeping car of the Central of Georgia, in Macon, as the car lay on a side track at the Terminal station, on the morning of September 15, the car having arrived about 3:30 a. m., and the passengers being asleep. A screen window at one end of the car had been cut out where the thief had made his entry and another at the other end where he made his escape.

C. H. Findley, chief claim agent of the railroad, a passenger on the car, was relieved of a gold watch and some documents; and the hammock in which his clothing was lying was removed from the berth.

The porter, who claimed to have been awake all the time,

was in one end of the car shining shoes and did not hear any noise. When one of the passengers called the porter to locate his trousers a number of pairs of trousers were found crumpled in a heap on the floor of the women's dressing room with the pockets rifled.

### A. R. E. A. Building Specifications Ready

The Committee on Buildings of the American Railway Engineering Association has been working for two years on specifications for buildings for railway purposes which specifications have now been completed and have been issued by the association in Bulletin No. 247, a publication of 100 pages. These specifications have been published at this time in order that an opportunity may be afforded for criticism prior to their presentation before the association at its annual meeting next March. It is the intention of the committee that these specifications shall be prepared in loose leaf form with the idea that specifications for any particular building may be built up by combining the necessary sheets into one specification. The committee solicits suggestions and comments and requests that they be sent to J. W. Orrock, principal assistant engineer, Canadian Pacific, Montreal, Que., who is chairman of the sub-committee in charge of their preparation.

### Railway Revenues and Expenses

The Interstate Commerce Commission's monthly summary of revenues and expenses for 198 Class I roads for July and for seven months is as follows:

Item	July		Seven Months	
	1922	1921	1922	1921
Av. miles operated..	235,220.77	234,723.96	235,250.44	234,775.67
Revenues:				
Freight .....	\$299,168,876	\$314,821,079	\$2,164,725,019	\$2,185,406,581
Passenger .....	100,668,083	108,885,612	603,567,620	683,889,236
Mail .....	7,179,155	7,312,170	51,873,142	56,434,779
Express .....	10,367,269	8,144,021	68,842,474	49,809,643
All other transp. ....	15,031,819	13,601,492	98,695,015	91,146,467
Incidental .....	10,130,570	9,753,768	62,141,945	69,384,590
Joint facility—Cr. ....	808,058	610,821	5,897,668	4,513,345
Joint facility—Dr. ....	170,840	189,270	1,211,847	1,226,069
Railway op. revs. ....	443,182,990	462,939,693	3,054,531,036	3,139,358,572
Expenses:				
Maintenance of way..	65,462,571	65,177,102	411,600,380	435,649,291
Maint. of equipment..	78,715,628	95,277,725	669,681,672	737,148,017
Traffic .....	7,597,239	6,896,362	50,469,424	49,955,317
Transportation .....	172,553,833	178,239,301	1,172,481,450	1,376,637,660
Misc. operations. ....	4,180,234	4,279,556	26,971,716	29,389,778
General .....	12,861,191	13,311,456	91,825,525	100,963,220
Trans. for inv.—Cr. ....	644,887	425,228	3,427,781	3,407,234
Railway op. exp. ....	340,725,809	362,756,274	2,419,602,386	2,726,336,052
Net. rev. from ry. op.	102,457,181	100,183,419	634,928,650	413,022,520
Railway tax accruals..	26,089,187	23,706,289	173,438,621	157,185,934
Uncollectible .....	114,565	112,490	775,267	602,140
Ry. op. income. ....	76,253,429	76,364,640	460,714,762	255,174,446
Equip. rents—Dr. bal.	5,187,763	5,244,742	32,074,464	29,317,256
Joint facility rent—				
Dr. balance. ....	1,826,629	1,795,702	10,369,204	11,143,112
Net Ry. op. inc. ....	69,239,037	69,324,196	418,271,094	214,714,078
Per cent of expenses.	76.88	78.36	79.21	86.84

<sup>1</sup>Includes \$2,932,311, sleeping and parlor car surcharge.

<sup>2</sup>Includes \$2,823,339, sleeping and parlor car surcharge.

<sup>3</sup>Includes \$17,879,407, sleeping and parlor car surcharge.

<sup>4</sup>Includes \$18,846,480, sleeping and parlor car surcharge.

### Former C. & E. I. Coal Road Sold

Purchase has been concluded of that portion of the former Brazil branch of the Chicago & Eastern Illinois between West Melcher, Ind., La Crosse and Goodland, and the Illinois-Indiana state line. This road, which was known, until the first part of this year, as the Brazil branch and the Indiana Coal division of the C. & E. I., will hereafter be known as the Chicago, Attica & Southern. Much of the stock in the new company has been sold to farmers, mine owners and grain elevator operators who are located along the line. These people have exerted every effort to prevent the junking of this road which proved so unprofitable to the C. & E. I., this company averaging a loss of about \$500,000 or more annually.

The purchase price was said to be \$250,000. Among those interested in the purchase of the road are J. S. Nave of Attica, Ind.; C. W. Zeigler, Attica, chairman of the Indiana highway commission; F. Lyons of Brook, Ind.; L. Shipman of Fowler, and E. S. Booe of Kingman, Ind. That part of the coal division between West Melcher and Brazil was recently saved from abandonment when the Cincinnati, Indianapolis & Western purchased it. This is considered the most profitable section of the branch line.

## Operating Statistics of Large Steam Roads—Selected Items for the Month of July, 1922,

Region, road and year		Average miles of road operated	Locomotive-miles			Car-miles		Ton-miles (thousands)		Average number of locomotives on line daily					
			Train-miles	Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, Excluding locomotive and tender	Net, Revenue and non-revenue	Serv-ice-able	Un-serv-ice-able	Per cent un-serv-ice-able	Stored		
New England Region:															
Boston & Albany.....		1922	394	232,190	244,969	23,415	4,423	69.3	209,668	74,005	112	31	21.5	...	
		1921	394	238,548	257,204	28,825	4,268	63.4	227,907	88,303	120	29	19.2	...	
Boston & Maine.....		1922	2,455	484,969	543,775	42,671	11,245	75.3	517,762	205,627	318	125	28.3	39	
		1921	2,469	501,041	554,038	47,562	10,413	67.7	543,685	221,613	343	115	25.1	63	
N. Y., N. H. & H.....		1922	1,959	431,276	476,649	25,939	11,454	73.4	530,317	210,789	266	79	22.9	22	
		1921	1,959	455,987	495,440	32,299	10,340	65.3	545,425	225,718	301	80	21.0	38	
Great Lakes Region:															
Delaware & Hudson.....		1922	887	227,653	305,365	30,192	6,394	73.3	340,886	156,871	307	8	2.6	197	
		1921	880	338,651	441,012	31,292	8,198	60.9	546,714	267,406	269	44	14.0	114	
Del., Lacka. & Western.....		1922	994	433,070	516,024	102,500	13,933	73.3	678,399	284,549	302	63	17.2	39	
		1921	995	485,022	587,595	110,734	14,683	67.5	822,777	383,357	307	53	14.7	47	
Erie (inc. Chic. & Erie).....		1922	2,309	762,044	826,198	65,316	26,246	69.4	1,410,470	594,201	509	251	33.0	78	
		1921	2,259	873,116	981,640	46,710	28,202	66.0	1,687,295	771,155	522	177	25.3	96	
Lehigh Valley .....		1922	1,316	458,879	508,933	71,774	13,233	71.9	707,946	321,178	443	114	20.5	164	
		1921	1,316	527,360	583,615	58,303	14,918	62.3	916,825	421,736	416	127	23.4	131	
Michigan Central .....		1922	1,827	472,084	488,279	23,274	16,848	68.8	841,411	318,343	311	91	22.5	88	
		1921	1,829	424,997	435,511	16,762	12,713	62.4	702,150	263,680	315	91	22.5	82	
New York Central.....		1922	5,675	1,494,716	1,656,384	122,625	56,892	70.8	2,928,017	1,214,787	943	628	40.0	288	
		1921	5,655	1,542,562	1,706,487	118,905	52,688	62.5	3,061,207	1,290,314	1,001	641	39.0	279	
N. Y., Chicago & St. L.....		1922	1,225	455,952	463,544	1,316	14,014	71.5	691,147	278,239	163	59	26.4	35	
		1921	1,225	397,911	399,451	1,359	11,064	64.8	582,108	225,529	182	80	30.6	64	
Pere Marquette .....		1922	2,182	290,199	294,754	5,105	7,117	72.3	362,532	162,618	162	49	23.2	17	
		1921	2,196	308,281	315,658	6,615	7,297	65.6	413,440	180,964	171	38	18.1	20	
Pitts. & Lake Erie.....		1922	228	90,987	95,849	713	2,927	68.8	191,525	110,091	65	20	23.8	15	
		1921	225	63,824	73,384	601	2,105	62.6	150,967	83,215	61	24	28.7	21	
Wabash .....		1922	2,418	434,732	516,192	5,088	15,265	77.3	733,353	314,893	282	54	16.0	32	
		1921	2,418	534,146	560,938	6,954	15,153	70.0	802,090	343,814	270	78	22.4	49	
Ohio-Indiana-Allegheny Region:															
Baltimore & Ohio.....		1922	5,235	1,181,969	1,344,521	87,285	32,041	73.8	1,738,520	858,448	671	686	50.6	54	
		1921	5,185	1,636,926	1,881,304	138,232	39,357	60.7	2,572,741	1,267,476	991	411	29.3	154	
Central R. R. of N. J.....		1922	689	227,461	243,597	24,762	4,956	70.1	246,809	108,288	266	33	12.7	57	
		1921	679	258,539	286,873	36,510	5,604	60.1	382,069	174,647	203	59	22.4	9	
Chicago & Eastern Ill.....		1922	945	201,498	204,434	3,486	4,886	71.1	252,546	118,596	115	62	34.8	29	
		1921	1,131	229,412	230,394	3,664	5,100	58.5	313,682	145,858	130	49	27.2	55	
C., C., C. & St. L.....		1922	2,383	578,038	604,578	10,240	17,764	65.9	1,010,760	462,099	290	199	44.4	13	
		1921	2,382	570,313	593,615	2,884	15,322	59.8	939,316	400,001	289	148	33.8	28	
Elgin, Joliet & Eastern.....		1922	459	90,527	97,434	4,244	2,866	71.2	195,263	107,985	86	21	19.8	21	
		1921	456	77,587	83,817	3,900	2,318	67.0	167,340	89,639	97	11	9.9	41	
Long Island .....		1922	394	42,268	44,040	8,214	461	61.0	25,612	9,187	36	8	17.8	1	
		1921	395	41,338	46,194	7,501	446	56.4	26,710	10,075	34	8	19.6	2	
Pennsylvania System.....		1922	10,903	4,138,189	4,417,758	293,461	115,140	69.2	6,830,747	3,275,724	2,589	783	23.2	599	
		1921	10,877	3,945,857	4,260,058	309,256	100,934	62.3	6,861,872	3,389,384	2,656	836	23.9	868	
Phila. & Reading.....		1922	1,119	432,878	466,829	46,012	10,404	70.0	600,729	298,737	389	73	15.8	227	
		1921	1,119	480,507	540,438	65,992	11,469	61.3	783,701	405,987	367	84	18.7	169	
Poconos Region:															
Chesapeake & Ohio.....		1922	2,548	590,151	654,263	15,674	17,048	60.3	1,300,857	701,899	357	193	35.1	35	
		1921	2,548	733,183	791,576	22,964	21,003	55.3	1,696,036	917,372	431	129	23.0	57	
Norfolk & Western.....		1922	2,228	787,301	977,073	30,522	21,159	59.4	1,612,112	872,036	617	99	13.8	117	
		1921	2,221	688,146	819,340	33,548	18,469	57.3	1,452,452	790,132	606	89	12.8	207	
Southern Region:															
Atlantic Coast Line.....		1922	4,922	536,756	540,202	9,473	12,100	70.2	596,794	245,859	322	87	21.3	19	
		1921	4,877	518,249	519,392	7,342	11,163	63.3	580,102	220,973	294	113	27.8	54	
Central of Georgia.....		1922	1,907	267,346	273,880	4,540	5,595	75.5	272,950	119,036	119	8	6.0	...	
		1921	1,899	267,556	273,381	3,410	5,343	66.2	289,506	120,822	112	23	17.0	...	
I. C. (inc. Y. & M. V.).....		1922	6,137	1,801,871	1,840,274	48,819	48,012	63.9	2,946,308	1,312,072	738	91	11.0	11	
		1921	6,151	1,482,989	1,489,040	33,517	38,321	62.9	2,427,182	1,078,466	703	98	12.2	19	
Louisville & Nashville.....		1922	5,021	1,362,840	1,406,627	47,338	24,370	66.8	1,426,449	675,223	618	74	10.6	1	
		1921	5,026	1,495,866	1,604,636	58,585	26,514	61.4	1,667,336	776,532	551	102	15.6	24	
Seaboard Air Line.....		1922	3,537	394,245	400,189	10,431	8,567	72.1	426,470	175,652	159	117	42.4	...	
		1921	3,537	392,819	398,574	6,648	8,084	66.8	415,454	165,263	166	92	35.6	...	
Southern Ry. ....		1922	6,942	1,229,021	1,257,320	39,880	27,123	75.4	1,308,649	563,848	840	207	19.8	17	
		1921	6,942	1,248,422	1,274,243	27,214	26,352	64.6	1,395,942	554,415	898	221	19.7	52	
Northwestern Region:															
C. & N. W.....		1922	8,419	1,253,211	1,298,987	26,157	29,303	70.4	1,508,570	609,232	782	259	24.9	74	
		1921	8,334	1,409,544	1,455,190	18,178	27,994	59.2	1,674,822	627,808	838	245	22.6	106	
C. M. & St. P.....		1922	11,027	1,497,565	1,539,897	66,884	38,720	68.2	2,050,219	904,925	814	245	23.2	114	
		1921	10,992	1,370,466	1,403,957	61,197	33,087	65.8	1,802,674	798,912	876	213	19.6	160	
C., St. P., M. & O.....		1922	1,726	350,432	385,214	19,089	6,406	68.8	378,460	159,020	156	56	26.3	28	
		1921	1,726	284,665	301,346	11,330	5,292	69.8	277,285	120,122	156	57	26.7	52	
Great Northern .....		1922	8,263	740,175	760,943	29,315	20,987	65.2	1,255,500	627,627	572	147	20.4	91	
		1921	8,159	675,191	692,217	23,438	17,747	64.6	1,041,651	483,345	604	175	22.4	268	
M., St. P. & S. Ste. M.....		1922	4,355	508,741	513,773	9,588	11,662	72.8	581,756	268,282	351	53	13.0	12	
		1921	4,225	414,724	444,343	5,641	8,579	66.9	430,928	181,936	344	56	13.9	41	
Northern Pacific .....		1922	6,389	840,498	873,022	38,368	22,577	76.4	1,181,845	552,955	573	127	18.2	85	
		1921	6,408	650,735	681,792	43,847	18,733	68.8	1,023,521	462,866	526	150	22.2	116	
Ore. Wash. R. R. & Nav.....		1922	2,143	206,552	226,092	31,747	4,973	72.6	274,975						



## Compared with July, 1921, for Roads with Annual Operating Revenues above \$25,000,000.

Region, road and year	Average number of freight cars on line daily			Per cent un-service-able	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car-miles per car-day	Net-ton miles per mile of road and tender	Pounds of coal per 1,000 gross tons, including locomotive and tender			PASSENGER SERVICE	
	Home	Foreign	Total								Train-miles	Passenger train car-miles			
New England Region:															
Boston & Albany.....1922	3,190	4,949	8,139	7.6	903	319	16.7	293	25.3	6,060	203	315,568	2,045,056		
1921	3,866	3,936	7,802	7.3	1,131	370	20.7	365	27.8	7,231	197	313,597	2,063,683		
Boston & Maine.....1922	16,125	13,647	29,772	17.3	1,081	424	18.3	223	16.2	2,701	168	902,644	5,190,788		
1921	18,494	12,027	30,521	21.3	2,921	442	21.3	234	16.3	2,896	146	945,638	5,319,161		
N. Y., N. H. & H.....1922	23,517	16,942	40,459	24.4	155	489	18.4	168	12.4	3,471	162	1,090,111	7,006,312		
1921	27,037	14,027	41,064	21.9	833	1,198	495	21.8	177	3,716	155	1,117,459	7,353,973		
Great Lakes Region:															
Delaware & Hudson.....1922	12,529	4,990	17,519	7.5	6,107	1,497	689	24.5	289	16.1	5,705	192	222,347	1,288,684	
1921	11,194	5,036	16,230	13.6	1,339	1,614	790	32.6	531	26.8	9,798	176	225,541	1,287,739	
Delaware, Lacka. & West. 1922	17,083	7,651	24,734	13.3	379	1,566	657	20.4	371	24.8	9,234	164	509,318	3,809,328	
1921	17,898	7,074	24,972	13.7	495	1,696	790	26.1	495	28.1	12,433	162	511,678	3,871,434	
Erie (inc. Chic. & Erie)..1922	35,687	19,266	54,953	19.1	3,921	1,851	780	22.6	349	22.2	8,300	136	691,879	5,195,316	
1921	40,922	14,868	55,790	21.7	11,028	1,932	883	27.3	446	24.7	11,013	129	684,884	5,361,532	
Lehigh Valley .....1922	31,457	9,634	41,091	12.6	6,295	1,543	700	24.3	252	14.4	7,871	171	355,319	2,867,678	
1921	32,578	8,581	41,159	15.1	3,886	1,739	800	28.3	331	18.8	10,335	154	370,802	2,956,049	
Michigan Central .....1922	15,388	13,495	28,883	16.6	.....	1,782	674	18.9	356	27.3	5,622	109	603,046	5,185,851	
1921	19,964	12,014	31,978	19.7	1,197	1,652	620	20.7	266	20.6	4,650	111	624,246	5,480,919	
New York Central.....1922	75,574	48,916	124,490	17.4	10,354	1,959	813	24.3	315	20.8	6,905	118	2,502,472	20,719,559	
1921	91,726	43,619	135,345	15.6	27,255	1,985	837	24.5	308	20.1	7,361	111	2,490,233	20,663,826	
N. Y., Chic. & St. L.....1922	4,966	8,852	13,818	15.0	369	1,516	610	19.9	650	45.7	7,324	122	156,152	920,036	
1921	8,384	7,227	15,611	20.9	1,271	1,463	567	20.4	466	35.3	5,937	105	152,844	796,834	
Pere Marquette .....1922	10,112	10,486	20,598	12.9	200	1,249	560	22.8	255	15.4	2,404	135	273,283	1,580,482	
1921	11,527	8,745	20,272	17.9	1,000	1,341	587	24.8	288	17.7	2,658	93	336,485	1,828,840	
Pitts. & Lake Erie.....1922	18,585	10,728	28,863	32.3	4,913	2,105	1,210	37.6	123	4.8	15,581	93	119,635	660,177	
1921	19,080	7,039	26,119	34.9	2,145	2,365	1,304	39.5	103	4.2	11,950	88	111,914	623,110	
Wabash .....1922	11,723	11,314	23,037	11.3	554	1,482	636	20.6	441	27.6	4,201	132	459,669	2,738,862	
1921	13,295	10,124	23,419	10.6	1,055	1,502	644	22.7	474	29.8	4,587	141	529,312	2,946,668	
Ohio-Indiana-Allegheny Region:															
Baltimore & Ohio.....1922	67,341	37,381	104,722	14.7	5,317	1,471	726	26.8	264	13.4	5,290	196	1,396,119	8,716,297	
1921	72,904	27,674	100,578	10.0	6,030	1,572	774	32.2	407	20.8	7,886	174	1,398,686	9,035,055	
Central R. R. of N. J.....1922	20,268	8,311	28,579	6.0	11,245	1,085	476	21.8	122	8.0	5,071	216	414,173	2,109,320	
1921	20,739	7,504	28,243	23.2	4,560	1,478	676	31.2	199	10.7	8,303	168	391,142	1,975,085	
Chicago & Eastern Ill.....1922	15,793	5,042	20,835	18.9	6,584	1,253	589	24.3	184	10.6	4,048	148	206,865	1,351,673	
1921	16,535	3,896	20,431	10.8	4,100	1,367	636	28.6	230	13.8	4,160	152	222,173	1,478,981	
C., C. & St. L.....1922	17,563	20,172	37,735	15.4	7,165	1,749	799	26.0	395	23.1	6,256	121	707,901	4,277,590	
1921	19,322	14,826	34,148	12.8	2,642	1,647	701	26.1	378	24.2	5,416	131	708,250	4,428,814	
Elgin, Joliet & Eastern. 1922	9,157	5,915	15,072	13.7	.....	2,157	1,193	37.6	231	8.6	7,587	108	(1)	(1)	
1921	9,735	3,539	13,274	9.9	2,363	2,157	1,155	38.7	218	8.4	6,337	115	(1)	(1)	
Long Island .....1922	2,146	2,799	4,945	5.2	68	606	217	19.9	60	4.9	752	364	225,663	1,427,787	
1921	2,450	3,268	5,718	2.6	1,120	646	244	22.6	57	4.5	824	346	229,546	1,402,524	
Pennsylvania System .....1922	191,825	85,847	277,672	14.1	22,308	1,651	792	28.4	381	19.3	9,692	137	5,257,619	34,940,235	
1921	221,026	63,610	284,636	13.4	58,482	1,739	859	33.6	384	18.4	10,052	128	5,386,945	36,265,386	
Phila. & Reading.....1922	23,985	11,053	35,038	4.8	8,864	1,388	690	28.7	275	13.7	8,610	194	511,817	2,360,082	
1921	28,817	9,269	38,086	8.6	7,309	1,631	845	35.4	344	15.8	11,705	173	536,967	2,456,785	
Poconos Region:															
Chesapeake & Ohio.....1922	35,512	15,769	51,281	16.0	739	2,204	1,189	41.2	442	17.8	8,886	131	449,181	2,528,102	
1921	41,885	10,850	52,735	9.2	4,298	2,313	1,251	43.7	561	23.2	11,613	117	447,842	2,571,572	
Norfolk & Western.....1922	28,087	12,421	40,508	5.3	.....	2,048	1,108	41.2	694	28.4	12,627	178	397,703	2,461,987	
1921	37,444	5,414	42,858	9.0	4,152	2,111	1,148	42.8	595	24.2	11,476	155	516,265	2,715,463	
Southern Region:															
Atlantic Coast Line.....1922	15,776	8,554	24,330	17.7	.....	1,112	458	20.3	326	22.9	1,611	121	701,732	4,181,273	
1921	20,840	6,153	26,993	22.9	.....	1,119	426	19.8	264	21.1	1,459	132	719,321	4,278,560	
Central of Georgia. ....1922	3,275	5,208	8,483	13.9	.....	1,021	445	21.3	453	28.2	2,014	165	335,567	1,700,167	
1921	4,861	3,787	8,648	15.4	.....	1,082	452	22.6	451	30.1	2,052	155	322,135	1,593,931	
I. C. (inc. Y. & M. V.)...1922	37,112	27,527	64,639	11.3	3,943	1,635	728	27.3	655	37.5	6,897	129	1,450,975	8,261,121	
1921	48,512	16,648	65,160	12.6	6,946	1,637	727	28.1	534	30.2	5,655	127	1,425,986	8,195,244	
Louisville & Nashville...1922	31,162	21,471	52,633	12.3	71	1,047	495	27.1	414	22.4	4,338	182	1,017,778	5,889,950	
1921	40,229	15,435	55,664	26.1	94	1,115	519	29.3	450	25.0	4,984	160	961,307	5,636,106	
Seaboard Air Line.....1922	12,141	10,464	22,605	34.1	.....	1,082	446	20.5	251	17.0	1,602	167	481,587	2,711,855	
1921	11,525	6,739	18,264	29.5	.....	1,058	421	20.4	292	21.4	1,507	174	561,757	3,193,925	
Southern Ry.....1922	33,186	28,141	61,327	13.3	.....	1,065	459	20.8	297	18.9	2,620	197	1,319,584	7,626,898	
1921	39,379	15,485	54,864	19.9	1,957	1,118	444	21.0	326	24.0	2,576	191	1,326,402	7,855,123	
Northwest Region:															
C. & N. W.....1922	43,734	26,268	70,002	9.3	2,100	1,204	486	20.8	281	19.2	2,334	147	1,546,210	10,201,241	
1921	51,174	22,692	73,866	10.1	8,900	1,188	445	22.4	274	20.6	2,430	163	1,697,026	11	

### Fire Risk in Northern Minnesota Forests

The railroads in Northern Minnesota, having suffered serious losses in damages paid on account of forest fires, particularly in 1918, have been taking special precautions to guard against the recurrence of these disasters. William Byrne, supervisor of the railway fire patrol, under the State forestry service, says that during the recent drought, the railroads have given a good account of themselves. He cites, particularly, the Duluth, Missabe & Northern, operating many trains daily through a section of woods which by the protracted drought, has become a mass of tinder. This road uses a small fleet of speeders, and one follows every train. Every fire caused by sparks is quickly reported and where necessary a special fire train is dispatched to extinguish it. Scores of small fires have thus been kept within the tank-of-way. This fire train consists of a locomotive and four tank cars with a high-pressure steam pump on the locomotive.

### Railway Books Selected by Executives

The Hotel McAlpin, New York, asked a number of railway executives to recommend books on transportation subjects for the hotel's business library. A number of executives gave their selections and the hotel has made public the titles chosen by Messrs. Kruttschnitt, Holden, Willard, Gorman and Parmelee. These lists varied from eleven to seventeen books each and the titles chosen by three or more of the five whose selections have been made public are:

Principles of Railroad Transportation, by E. R. Johnson and T. W. Van Metre,

The American Transportation Question, by Samuel O. Dunn, Railroads: Rates and Regulation, by W. Z. Ripley.

Railroad Traffic and Rates, by E. R. Johnson and G. C. Huebner, Regulation of Railways, by Samuel O. Dunn,

Railroads and Government, by F. H. Dixon, Waterways versus Railways, by H. G. Moulton,

Where and Why Public Ownership Has Failed, by Yves Guyot, Government Ownership of Railways, by Samuel O. Dunn,

Railroad Administration, by Ray Morris.

Titles mentioned on two of the five lists which were submitted are:

The Railways and the Traders, by Sir W. M. Acworth, Railroads: Finance and Organization, by W. Z. Ripley,

Elements of Railway Economics, by Sir W. M. Acworth, The Rise of Rail Power in War and Conquest, by E. A. Pratt,

Economic Theory of the Location of Railways, by A. M. Wellington.

### Report on Winslow Junction Derailment

The Interstate Commerce Commission has issued a report, dated July 26, and signed by W. P. Borland, Chief of the Bureau of Safety, on the cause of the derailment at Winslow Junction, N. J., on the Atlantic City Railroad, July 2, when three passengers and four trainmen were killed and 84 passengers and five employees were injured. This derailment was reported in the *Railway Age* of July 8, page 77 (with editorial comment in the issues of July 8 and July 15). The present report gives few additional details. It contains excellent photographic engravings showing the line of the road and the signals. The summary at the end of the report says that the evidence is conclusive that the route was lined for the branch at least five minutes prior to the approach of train No. 33. The approach locking would not have prevented the signalman from changing the route after the train had passed the distant signal, but there is no evidence that this was done and the inspector accepted the signalman's statement that he had not moved any of the levers after setting up this route. Engineman Wescott was employed as a fireman in 1906 and was promoted to engineman in 1909; and his record was clear. He had been on duty about one hour and 40 minutes, and before that was off duty 13 hours or more. The report says, further: "The investigation disclosed that Engineman Wescott apparently failed to shut off steam, did not acknowledge proceed signals given by brakemen at the rear end and head end of freight train No. 491 (standing on the side track), did not whistle for the crossing near the distant signal, and did not sound one long blast on the whistle required to be sounded when approaching junctions, and customarily sounded at this particular point to call for the high-speed route to Atlantic City." The report contains the usual recommendation for the introduction of automatic train control apparatus.

## Commission and Court News

### State Commissions

#### Final Effort to Prevent Junking Part of M. D. & G.

Roused in final effort to prevent junking of that portion of the Memphis, Dallas & Gulf between Hot Springs, Ark., and Glenwood, and seeking immediate restoration of freight and passenger service as vital to the interests of over 1,500 square miles tributary to the line, more than a dozen petitions were presented to the Arkansas Railroad Commission on September 18. The petitions, many of which were in bulk form, containing the names of many farmers, mill operators, fruit and truck organizations, laborers, schoolteachers and other producers and shippers, set forth that following the annulment of service on the railroad: "Mills have shut down, immigration and land settlement has stopped, bank deposits have shrunk, trade has dwindled, lands have depreciated in value, many businesses have gone into bankruptcy and permanent junking of the said railroad or longer annulment of service means financial ruin to hundreds of farmers and scores of business enterprises. . . ." The petitions represented a territory from Hot Springs west to New Hope, about 70 miles.

### United States Supreme Court

#### Court Will Construe Tariffs, Regardless of I. C. C.

In an action by an elevator company against the Great Northern and the Director General to recover \$80 alleged to have been exacted in violation of the carrier's tariff, as a reconsignment charge for corn shipped from points in Iowa and Nebraska to Willmar, Minnesota, and after inspection rebilled to Anoka, it appeared that the tariff rate from points of origin to both places was the same. Willmar is the place where grain by this route is inspected and graded under the state and federal laws. The shipper claimed that the case was within the exception, Paragraph A, to Rule 10 of the tariff. Whether the charge was payable depended solely upon a question of construction; that is, whether the body of the rule or the exception to it applied. On this question there was room for reasonable difference of opinion. The railroad, relying particularly upon *Texas & Pacific vs. American Tie & Lumber Co.*, 234 U. S. 138, and *Loomis vs. L. V. 240 U. S. 43*, claimed seasonably that until the true construction of the tariff had been determined by the Interstate Commerce Commission the trial court was without jurisdiction. The court overruled this objection, construed the exception, and entered judgment for the shipper, which was affirmed by the Minnesota Supreme Court. The case was brought to the United States Supreme Court on writ of certiorari, 255 U. S. 567.

The railroad contended that, to insure uniformity, the true construction must, in case of dispute, be determined by the Commission. The Supreme Court says, in part: "This argument is unsound. It is true that uniformity is the paramount purpose of the commerce act. But it is not true that uniformity in construction of a tariff can be attained only through a preliminary resort to the Commission to settle the construction in dispute. Every question of the construction of a tariff is deemed a question of law; and where the question concerns an interstate tariff it is one of federal law. If the parties properly preserve their rights, a construction given by any court, whether it be federal or state, may ultimately be reviewed by this court either on writ of error or on writ of certiorari; and thereby uniformity in construction may be secured. What construction shall be given to a tariff presents ordinarily a question of law which does not differ in character from those presented when the construction of any other document is in dispute. . . . In this case no fact, evidential or ultimate, is in controversy; and there is no occasion for the exercise of administrative discretion.

Judgment of the State Supreme Court was affirmed. *Great Northern vs. Merchants' Elevator Co.* Opinion by Mr. Justice Brandeis. Decided May 29, 1922.



## Foreign Railway News

### A Swiss to Direct Electrification in Japan

Press dispatches from Geneva are authority for the statement that a Swiss engineer named Durler has been appointed director of works for the electrification undertakings planned by the Japanese State Railways.

### 120 Miles of Color-Light Signals

#### for New Zealand Railways

The New Zealand Government Railways are to instal automatic block signals on 120 miles of line, single track, color-light signals to be used, and the electric apparatus to be alternating current. The material has been ordered from the Westinghouse Brake & Saxby Signal Company, London.

### Technical Details of Portuguese Railway Equipment

Consul General Hollis at Lisbon has prepared a report called "Equipment on Portuguese Railways" which can be obtained by any interested manufacturer by applying to the Bureau of Foreign & Domestic Commerce, Washington, D. C., and asking for exhibit No. 64991. This report shows the various standard types of locomotives and freight and passenger cars in use on Portuguese railways, giving complete technical details.

### Wages in Ireland to Stay Up Temporarily

LONDON.

A year ago, on the termination of government control, the Irish railway companies proposed to reduce their employees' wages, but this proposal was resisted and eventually an agreement was arrived at, which was later extended and was finally to expire on August 15, 1922, the anniversary of decontrol. The railway companies have now intimated to the provisional government that in view of the present disturbed state of the country, and in the national interest they will carry on to the best of their ability until the end of the year under the present conditions, it being understood that the government will see that the interests of the shareholders are not prejudiced.

### Automatic Train Control Tests in Ireland

LONDON.

On September 4 tests were conducted of an automatic train control and fog signaling apparatus invented by Andrew Kerr, of Belfast. A 4-4-0 locomotive belonging to the Northern Counties section of the Midland Railway had been fitted with Mr. Kerr's apparatus, which is designed to give an audible warning and partial brake application at distant signals, to bring a train compulsorily to a stop at home signals and to give also a definite clear indication when passing a signal which is "off." The apparatus is entirely mechanical. The tests were carried out under the direction of Bowman Malcolm, chief engineer; F. G. Hopkirk, assistant engineer, and F. Cochrane, general foreman of the locomotive works.

### Hungary Builds Locomotives

#### With Water Tube Fireboxes

LONDON.

The Hungarian State Railways with a view to testing the relative merits of the 4-6-0 type of passenger engine arranged for simple and compound operation, in both cases with superheated steam, have built one of each type at the shops at Budapest, and some extensive tests have been made. These tests favored the single-expansion type of locomotive and large orders for this class of locomotive are now in course of execution. The engines are fitted with water tube fireboxes, feed water heaters with purifiers and other special features. For freight traffic locomotives of the 2-8-2 and Mallet types have been introduced and both these are similarly equipped with water tube fireboxes and the other devices mentioned. The locomotives are of large proportions and designed

for the highest tractive effort that circumstances permit. The difficulty in Hungary is that maximum axle loads of 14 tons cannot be exceeded in the Eastern zone and 16 tons per axle in most of the other districts. These moderate loadings have naturally had their effect upon locomotive design, the weight having to be distributed over a greater number of wheels than would otherwise have been necessary.

### Color Light Signals on the Great Western

LONDON.

At Paddington station, London, of the Great Western Railway, color light signals have been installed, suspended from the passenger footbridge across the station, in place of mechanically operated repeating signals and some of the backing signals. These color light signals have orange and green indications and can be seen in both directions. They are designed so that a failure of the operating current will cause the orange light to be given in all cases.

### London & North Western Ticket Limits

The London & North Western announces in New York that passenger tickets for journeys in Great Britain, bought in America, are now valid for 40 days from date of issue; and the return halves of round trip tickets are good for 3 months. The requirement for further stamping or dating at stations in Great Britain is discontinued. The free allowance for baggage, subject to a few exceptions, is, in Scotland, on one first-class ticket, 120 lb., and on one third-class ticket, 60 lb. Between all stations in England and Wales and to or from Scotland, on one first-class ticket, 150 lb.; on one third-class ticket, 100 lb.

### The Riga Railway Conference

At the railway conference held in Riga during the last two weeks of June, three agreements were adopted regarding direct traffic between the Baltic states (including Finland) and Germany and Russia, according to Commerce Reports.

The first agreement concerned traffic between Russia and the Baltic states (Latvia, Esthonia, Lithuania) and Finland, and represented the so-called Baltic states and Russian Direct Traffic Union. According to this convention, the states in question retain freedom of action in stipulating the rates for direct communication until the drafting of mutual tariff scales. A mutual settlement of accounts is to be offered on the fifteenth of each month.

The second agreement concerned direct traffic between Germany and Soviet Russia, by way of Latvia, Lithuania, and Esthonia. According to this agreement, Russia will exact payment in Russian currency for the conveyance of passengers, goods, and luggage between the Russian border and the Russian interior; Germany receives that part of the remuneration which covers the conveyance of such traffic between Germany and the Russian borders via Latvia and Lithuania. Both Latvia and Lithuania settle their accounts with Germany, each in its respective currency.

The third agreement relates to direct traffic between Germany and the States of Latvia, Lithuania, and Esthonia. These several agreements are subject to confirmation by the respective governments, whereupon they come into force.

### Electrification of the South Eastern &

#### Chatham Railway, England

Plans and negotiations are being made for the purpose of obtaining a supply of electric power for the electrification of the South Eastern & Chatham. The railroad company has applied to the Electricity Commissioners for consent to the establishment of a 60,000-k.w. generating plant at Angerstein's Wharf, Charlton. The West Kent Electric Company Limited also applied for consent to build a 150,000-k.w. generating station at Belvedere in the urban district of Erith. During the course of the inquiry, offers to supply the railroad company were made by the West Kent Company and by the County of London Electric Supply Company.

An important factor in this case is the forthcoming grouping into one railway system of the London & South Western, the London, Brighton & South Coast and the South Eastern & Chatham Railways. The London & South Western Railway Company is supplied with electric power from its 25 cycle generating station at Wimbledon. The London, Brighton & South Coast purchases

energy from the London Electric Supply Corporation. The further electrification of that railway's suburban lines will entail a supply which will be many times in excess of that now furnished by the London Electric Supply Corporation and this additional supply must be supplied at a frequency of 25 cycles, for the reason that the equipment of the company's rolling stock is designed for that frequency. The South Eastern & Chatham Railway Company also desire a supply at 25 cycles, but as their system of electrification will be direct current, a supply at a frequency of 50 cycles is also practicable.

It is expected that the first stages of the electrification of the South Eastern & Chatham will be completed by June 30, 1925, and arrangements have been made with the Treasury for a guaranteed loan of £6,500,000, five millions of which are to be expended on the electrification of the lines. This financial assistance is dependent upon making arrangements for an adequate power supply. If the railway company purchases its power supply from an outside source, it will be relieved from a capital outlay of something more than £1,000,000.

### What Great Britain's Railways Have Accomplished Since Returned to Private Control

LONDON, Eng.

It is now practically one year since the railways of Great Britain were handed over by the British government to their owners. The coal strike and trade depression at that period had caused a serious diminution in railway revenues and it was well known that the railways were working at a loss. With the return to private ownership the railway companies were confronted with the necessity of making expenditures and revenue balance. They had at the same time to meet the persistent demands of the British public for a reduction in rates and fares, the public absolutely ignoring the financial embarrassment of the railways. It was under such conditions that the companies were faced with the necessity of restoring their financial equilibrium. The problem of giving improved facilities to those which had been possible during the period of government control was rendered more difficult by the fact that the chief item of railway expenditure, namely wages, was outside the control of the companies, being regulated by a sliding scale based on the cost of living, and that no direct action could be taken to reduce the cost of fuel and other materials required by the railways. There was also the fear that in the then depressed condition of trade the attempt to provide better facilities for passenger and merchandise traffic at lower rates would easily result in actual loss. It is, however, to the credit of the British railways that no sooner were they placed on their own resources than they instituted quite an elaborate program of holiday excursions. These concessions included day and half-day excursions at a single fare for the double journey, period excursions at a fare and a third for the double journey, guaranteed day and period excursions by special trains, daily tickets for local journeys to and from holiday resorts under certain circumstances at a single fare for the double journey, cheap fares to passengers attending local events, such as flower shows, agricultural shows, and so forth, from stations within a radius of 60 miles, week end tickets and commercial travellers tickets at a fare and a third for the double journey, tourist and pleasure party, walking tour, shopping and other cheap tickets. These facilities, however, lack the generosity of those prevailing before the war. It is also interesting to note that as passenger fares are still 75 per cent above prewar level, cheap tickets are also 75 per cent above those prevailing in 1913.

With reference to freight traffic, the 100 per cent increase brought into operation on September 1, 1920, has been reduced to 75 per cent, while the flat rate increases have been lowered by one-half.

Much progress has also been made in the speeding up of passenger services and the provision of through travelling facilities and the restoration of old and the introduction of new cross-country trains. This last feature has been made possible owing to the union of interests arising out of the railway grouping scheme. With regard to the speeding up of freight traffic, the revival of express services for perishable freight and the improved timing of many long-distance services following the exclusion of vacuum brake fitted cars from the car pooling scheme, is of interest. Round trips of 500 to 600 miles are now made by freight trains in 48 hours.

## Equipment and Supplies

### Locomotives

THE LEHIGH VALLEY is inquiring for 25 Mikado type locomotives.

THE MAINE CENTRAL is inquiring for twelve 4-6-0 type locomotives.

THE SEABOARD AIR LINE contemplates buying 15 Pacific type locomotives.

THE GREAT NORTHERN contemplates purchasing a number of locomotives.

THE ATLANTIC COAST LINE has ordered 25 Pacific type locomotives from the Baldwin Locomotive Works.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 30 Mikado type and 10 Mountain type locomotives.

THE ERIE will have repairs made to about 100 locomotives at the shops of the Crucible Steel Company, Harrison, N. J.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS has ordered 7 Mikado type locomotives from the Baldwin Locomotive Works.

THE BALTIMORE & OHIO has placed an additional order for 50 Mikado type locomotives with the Baldwin Locomotive Works.

THE NORTHERN PACIFIC is expected to issue inquiries within the next few weeks for from 50 to 80 miscellaneous type locomotives.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 15 Mikado type locomotives from the American Locomotive Company. These locomotives will have 28 by 32 in. cylinders and a total weight in working order of 355,000 lb.

THE CHESAPEAKE & OHIO, reported in the *Railway Age* of September 16 as negotiating for the purchase of 50 Mallet type locomotives, has ordered this equipment from the American Locomotive Company to be built at its Schenectady, N. Y., works.

THE NEW YORK CENTRAL's order for 100 locomotives reported in the *Railway Age* of September 16 has been changed to 90 locomotives—50 Pacific type and 40 Mikado type. The Pacific locomotives will have 23½ x 26 in. cylinders and a total weight in working order of 288,000 lb., and the Mikado locomotives will have 28 x 30 in. cylinders and a total weight in working order of 340,000 lb.

THE TEXAS & PACIFIC, reported in the *Railway Age* of September 16 as inquiring for 8 Pacific type and 8 switching locomotives, has ordered this equipment from the American Locomotive Company. The Pacific type will have 26 by 28 in. cylinders and a total weight in working order of 281,000 lb. The six-wheel switching locomotives will have 21 by 28 in. cylinders and a total weight in working order of 164,000 lb.

THE NORFOLK & WESTERN, reported in the *Railway Age* of September 16 as inquiring for from 20 to 40 Mallet type locomotives and 12 Mountain type locomotives, has ordered 30 Mallet type locomotives from the American Locomotive Company and 12 Mountain type locomotives from the Baldwin Locomotive Works. The Mallet type will have 25 and 39 by 32 in. cylinders and a total weight in working order of 531,000 lb.

### Freight Cars

THE GRAND TRUNK is inquiring for 250 refrigerator cars.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 50 caboose cars.

THE FRUIT GROWERS EXPRESS is inquiring for 1,000 steel underframes.



THE ELGIN, JOLIET & EASTERN contemplates having repairs made to 200 side dump cars.

THE NEW YORK, CHICAGO & ST. LOUIS is inquiring for 200 steel center constructions for freight cars.

THE CHICAGO & ALTON is asking for prices on repairs to 300 gondola cars. This company, however, may repair its own cars.

THE WESTERN PACIFIC, reported in the *Railway Age* of September 16 as inquiring for 100 gondola cars, is inquiring for 100 automobile cars instead.

THE ROXANNA PETROLEUM COMPANY, St. Louis, Mo., has ordered 50 insulated tank cars of 8,000 gal. capacity from the Standard Tank Car Company.

THE CHAMPLIN REFINING COMPANY, Enid, Okla., has ordered 500 tank cars of 8,000 gal. capacity with 40-ton trucks, from the Pennsylvania Tank Car Company.

THE WABASH, reported in the *Railway Age* of September 16 as inquiring for repairs to 500 box cars, 300 stock cars and 250 automobile cars, has decided to do its own repair work.

THE CHICAGO, ROCK ISLAND & PACIFIC will soon issue inquiries for 500 box cars, 500 coal cars, 500 automobile cars, 250 flat cars, 250 ballast cars, 250 refrigerator cars, and 250 stock cars.

THE BALTIMORE & OHIO, reported in the *Railway Age* of September 2 as inquiring for 1,000 steel hopper cars of 55 tons' capacity, has ordered this equipment from the American Car & Foundry Company.

THE CINCINNATI, INDIANAPOLIS & WESTERN was erroneously reported in the *Railway Age* of September 16 as having placed an order with the Pullman Company for 300 gondola cars. No contract for this equipment has been closed to date.

THE PITTSBURGH, SHAWMUT & NORTHERN, reported in the *Railway Age* of September 16 as inquiring for 200 stock cars of 30 tons' capacity and 50 box cars of 40 tons' capacity, is also inquiring for 200 stock cars of 40 tons' capacity, 50 box cars of 50 tons' capacity and from 150 to 200 stock car bodies.

THE INDIAN STATE RAILWAYS are inquiring through the car builders for a total of about 3,100 cars to include 1,875 covered goods wagons, 500 open goods wagons, 100 bogie wagons, 35 bogie rail and timber, all of broad gage, 585 four-wheel covered goods wagons and 25 bogie rail and timber of meter gage.

ST. LOUIS-SAN FRANCISCO, reported in the *Railway Age* of September 9 as inquiring for 1,500 steel frame, double hopper cars of 55 tons' capacity, 1,500 single sheathed box cars of 40 tons' capacity and 300 stock cars of 40 tons' capacity, has ordered 1,000 hopper cars from the Chickasaw Ship Building Company and 500 hopper cars from the Pullman Company; the 1,200 box cars from the American Car & Foundry Company and 300 stock cars from the Mount Vernon Car Manufacturing Company.

## Passenger Cars

THE CHICAGO, ROCK ISLAND & PACIFIC will soon issue inquiries for 50 all-steel suburban passenger cars.

THE CHICAGO & EASTERN ILLINOIS, reported in the *Railway Age* of September 9 as inquiring for 17 steel baggage cars, 70 ft. long, has ordered this equipment from the Pullman Company.

## Iron and Steel

THE ST. LOUIS-SAN FRANCISCO is inquiring for 600 tons of structural steel.

THE MISSOURI PACIFIC has ordered 275 tons of structural steel from the American Bridge Company.

THE LONG ISLAND will receive bids until 10 a. m. September 30 for 8,000 gross tons of open-hearth steel rail.

THE UNION PACIFIC has placed an order with the American Bridge Company for 2,735 tons of structural steel.

THE MISSOURI PACIFIC has asked prices on its 1923 requirements for steel rails, the tonnage not being specified.

THE CHICAGO & EASTERN ILLINOIS is expected to place contract with the Illinois Steel Company for 5,000 tons of new rail.

THE CHICAGO, BURLINGTON & QUINCY has placed an order with the American Bridge Company for 1,056 tons of structural steel for miscellaneous bridge work.

A MAJORITY OF THE WESTERN RAILROADS are negotiating direct with the steel companies for new rail to place contracts before the price increase becomes effective.

THE PENNSYLVANIA RAILROAD has ordered from the Phoenix Bridge Company 1,000 tons of bridge steel for five bridges to be built over street crossings at Elizabeth, N. J.

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon September 25, for the requirements of the New York Central and subsidiary lines of not to exceed 200,000 tons of open-hearth steel rail, ranging from 120 lb. to 80 lb. sections with the necessary angle bars for delivery not later than July 1, 1923.

## Track Specialties

THE WABASH is inquiring for 370 kegs of track bolts.

THE MOBILE & OHIO is inquiring for 900 kegs of track spikes.

THE ST. LOUIS SOUTHWESTERN is inquiring for 500 kegs of track bolts and 300 kegs of track spikes.

## Machinery and Tools

THE CENTRAL OF GEORGIA is inquiring for 15 miscellaneous type machines.

THE CHICAGO & NORTH WESTERN has ordered a coal handling gantry crane with a 1½ yd. bucket from the Milwaukee Electric Crane & Manufacturing Company. The crane will be leased to the Armour Grain Company for use at its grain elevator in South Chicago.

THE MISSOURI, KANSAS & TEXAS is inquiring for 37 miscellaneous type lathes, six planers, six radial drills, six crank shapers, five milling machines, three grinders and two boring mills, besides shears, bulldozers, boxlathes, bolt cutters, pipe threaders and other miscellaneous equipment. The machines are to be motor driven with push button control.

## Miscellaneous

THE BROWN HOISTING MACHINERY COMPANY, Cleveland, Ohio, is inquiring for 107 trucks.

THE NEW YORK CENTRAL LINES WEST will receive bids until October 2 for its requirements until January 1, 1923, for fuel oil, gasoline, kerosene, lubricating oil, grease and tallow candles.

THE GOVERNMENT OF THE NETHERLANDS, Colonial Branch, New York, is asking for bids on 2,000 axles and 400 wheels for service on passenger and freight cars of the State Railways in the Dutch East Indies.

THE GOVERNMENT OF THE NETHERLANDS, Colonial Branch, New York City, has bought from the American Copper Products Company, New York, 900,000 lb. of copper cable for a 70,000-volt transmission line to be erected in Java in connection with the electrification of the Java State Railways. An order has also been given for high tension insulators of the link type Hewlitt insulator to R. Thomas & Son, East Liverpool, Iowa.

## Signaling

THE GOVERNMENT OF JAPAN, through the Takata Exporting Company has ordered from the General Railway Signal Company 200 Model 2A semaphore signals and 70 light signals. The order includes all auxiliary equipment such as relays, transformers, etc., required for installation. Seventy color light signals are to be shipped to Kobe and 200 upper left-hand quadrants to Yokohama. This order follows one placed last year for 370 automatic signals.

## Supply Trade News

**H. C. Thomas**, general superintendent of the **United Alloy Steel Corporation**, Canton, Ohio, has been promoted to assistant general manager.

The **Chicago Flexible Shaft Company**, Chicago, Ill., has opened a new district sales office at 305 Merchants Bank building, Indianapolis, Ind., in charge of **F. W. Odemar**.

The merger of the **Bethlehem Steel Corporation** and the **Lackawanna Steel Company** was ratified at recent meetings of the stockholders of these companies. Announcement of this merger was made in the *Railway Age* of May 20, page 1196.

**C. T. Pratt**, treasurer of the **Brown Hoisting Machinery Company**, Cleveland, Ohio, has resigned and **A. C. Brown**, president of that company, has assumed the additional duties of treasurer. **J. F. Pierce** has resigned as auditor and director of the same company. This latter vacancy probably will not be filled for the present.

The **Walworth Realty Company**, a subsidiary of the **Walworth Manufacturing Company**, Boston, Mass., manufacturers of pipe fittings, piping tools, etc., has awarded to **Dwight P. Robinson & Co., Inc.**, New York, a contract for the design and construction of a warehouse, pipe shop and garage to be located at Jackson avenue, Long Island City, N. Y.

**H. C. Mull**, in charge of railway sales for both the **Reliance Manufacturing Company**, Chicago, and the **Warren Tool & Forge Company**, Warren, Ohio, with headquarters at Chicago, has resigned from the former and will hereafter represent only the latter, with headquarters at Warren, Ohio.

**Russell, Holbrook & Henderson**, 30 Church street, New York, has been appointed sales representatives for the territory in and near New York City of the **Oilgear Company**, Milwaukee, Wis. The **Cadillac Machinery Company**, Detroit, Mich., will handle Oilgear products in the state of Michigan and the **R. E. Ellis Engineering Company**, 621 Washington boulevard, Chicago, will represent the Oilgear Company in Chicago and the surrounding territory.

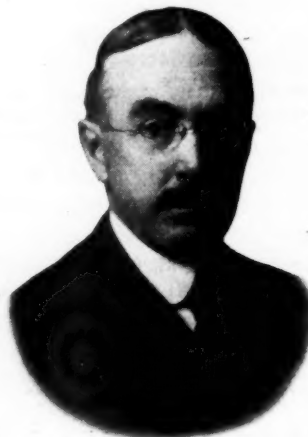
**John S. Ruble**, who recently resigned as vice-president of the **Austin Company**, has been elected vice-president in charge of all construction of the **H. K. Ferguson Company**, engineers and builders, Cleveland, Ohio. Mr. Ruble was graduated in mechanical engineering from **Pennsylvania State College** in 1901. He was then engaged for four years in dock, ore storage and unloading equipment design and construction with **Hoover & Mason**, contracting engineers. He subsequently served for eight years as an engineer with the **U. S. Steel Corporation** at various places, then as construction engineer for the **Tennessee Coal, Iron & Railroad Company**, at Birmingham, Ala.

The stockholders of the **New York Air Brake Company**, New York City, at a recent meeting voted to amend the certificate of incorporation so as to provide that the authorized and outstanding 100,000 shares of common capital stock of the par value of \$100 each be changed into 200,000 shares of common stock without par value, so that each stockholder in the company will hold two shares of common stock without par value for every share of capital stock of par value of \$100 heretofore held. The certificate of incorporation was further amended so as to create an issue of class A stock of an authorized number of shares of 100,000 and the board of directors unanimously resolved that this class A stock be offered to the stockholders of record September 28, 1922, pro rata for subscription at \$50 per share.

## Obituary

**J. M. Potter**, treasurer of the **Northwestern Malleable Iron Company**, Milwaukee, Wis., died on September 6, at the age of 61 years. He had been connected with the above company for 32 years.

**Frederick W. Cooke**, formerly general manager of the **Cooke Locomotive Works** whose death on August 30 at his summer home at Quogue, Long Island, was noted in the *Railway Age*



Frederick W. Cooke

of September 9, was born on July 10, 1860, at Paterson, N. J., and graduated from **Stevens Institute** in 1882. He served as vice-president and general manager of the **Cooke Works** from 1883 until the plant was sold in 1901 to the **American Locomotive Company** and then was general manager until his resignation in 1912. The **Cooke Works** originated as the **Charles Danforth Company**, manufacturer of cotton machinery at Paterson, N. J. In 1852 **John Cooke** became associated with these interests and a

new company was organized in July of that year under the name of **Danforth, Cooke & Company**, Paterson, N. J., to build machinery and locomotives; and it continued under this name until 1865 when the name was changed to the **Danforth Locomotive & Machine Company**, of which **John Cooke** was the head and active manager of the locomotive branch. The business soon outgrew the machine interest and the latter was given up entirely some years later. **John Cooke** died in February, 1882, and was succeeded by his brother, **James Cooke**, formerly superintendent. The latter died on August 2, 1883, shortly after which date the stock control passed into the hands of the **Cookes** and the corporate name was changed to the **Cooke Locomotive & Machine Company** with **John S. Cooke**, president, and **Frederick W. Cooke**, vice-president and general manager. The business increased and work was started in 1888 on new works on the present site. In 1901 the works were sold to the **American Locomotive Company** and became the **Cooke Works** of that company. Mr. Cooke continued as general manager until his retirement in 1912. During the late war **Frederick W. Cooke** took an active part in the raising of funds for the various war reliefs.

## Trade Publications

**BEARING METALS.**—The **A. W. Cadman Manufacturing Company**, Pittsburgh, Pa., has recently issued engineering bulletins M-1 and M-2. The first bulletin deals with the properties of bearing metals, especially those alloys known as **Cadman metals**. The second contains miscellaneous technical information pertaining to bearings and bearing metals, discussing such questions as the theory of bearing metals, friction in bearings and permissible bearing pressures.

THE **PENNSYLVANIA** proposes during the next nine weeks to put forth a "giant effort" to do more than its share in moving bituminous coal from mines to Cleveland, Ashtabula, and Erie, for the upper lake territory. The **Northwest** has been taking an average of 22,000,000 tons of lake cargo bituminous coal annually. The season for the lake boats ends about November 15. The **Northwest** is estimated to be short more than 10,000,000 tons in lake coal. It is calculated that the total lake cargo coal that the railroads can move to lake ports will run about 1,000,000 tons a week. This amount is not yet in sight for a weekly haul. The **Pennsylvania** has ordinarily hauled 21 per cent of this freight. The **Bedford yard**, 12 miles out of Cleveland, used exclusively for bituminous coal and ore trains, has been reopened. The **Pennsylvania** has coal-loading machines at Cleveland (3), at Ashtabula (2) and at Erie (2), seven in all. The record for speed at the Cleveland docks is 40 cars in an hour. Under an arrangement just put into effect bituminous coal reaching lake ports will be pooled, assuring faster boat loadings and saving in time probably 20 per cent.



## Railway Construction

**ATCHISON, TOPEKA & SANTA FE.**—The Interstate Commerce Commission has issued a certificate authorizing the construction of two branch lines in Osage County, Okla., one beginning at a point 1.7 miles north of Burbank and extending in a northeasterly direction through De Noya, 6.24 miles, and the second beginning at De Noya Junction on the above branch and extending in an easterly direction 2.97 miles. Construction of the two lines was begun on February 4, 1922, but at the time it was intended to operate them as spur tracks.

**ATCHISON, TOPEKA & SANTA FE.**—This company has awarded a contract for a machine shop at Waynoka, Okla., to E. Ware, El Paso, Tex., and a contract for sash work to the Truscon Steel Company, Detroit, Mich.

**CHICAGO & WESTERN INDIANA.**—This road is working on plans for a new passenger terminal on its present location at Chicago for use by the roads using the present terminal with facilities sufficient to accommodate also the roads using the LaSalle and Grand Central stations.

**CHICAGO, BURLINGTON & QUINCY.**—This company will close bids on September 25 for the construction of a passenger station 24 ft. by 100 ft. at Clarence, Mo., and will close bids on September 29 for a 50-ton coaling station at Clarinda, Iowa.

**CHICAGO UNION STATION.**—This company will receive bids for the widening of Canal street, Chicago, from Harrison street 225 feet north.

**FLORIDA EAST COAST.**—This company has applied to the Interstate Commerce Commission for a certificate authorizing an extension from Okeechobee to Miami, Fla., 125 miles. The line is to develop the Everglades south and east of Lake Okeechobee and open a territory practically devoid of any means of transportation. The extension would also afford a separate through line inland from Miami to Smyrna, 240 miles, which would serve as a second main line.

**ILLINOIS CENTRAL.**—This company will construct additional storage tracks at Manchester, Iowa, and passing tracks at Gilman, Ill., Weedman and Guthrie, and at one other place.

**ILLINOIS CENTRAL.**—This company will improve its water facilities at Peosta, Ia., at a cost of \$15,000; at Kimmunday, Ill., \$20,000; at Pana, \$9,000; at Ramsey, \$21,000; at Memphis, Tenn., \$27,000, and at Champaign, Ill., \$18,000. This company will also improve its coal handling facilities at McComb, Miss., at a cost of \$69,000, and its air testing facilities at Dubuque, Ia., at a cost of \$10,000. Passing tracks will be constructed at Dowell, Ill., at a cost of \$20,000; Lenzberg, \$11,000, and Marion, \$13,000. This company will also extend its passing and yard tracks at Marissa, Ill., at a cost of \$76,000, and passing and storage tracks will be constructed at Cambria, Ill., at a cost of \$25,000.

**MISSOURI PACIFIC.**—This company is receiving bids for the construction of a car repair shop 120 ft. by 510 ft. at Kansas City, Mo.

**OREGON, CALIFORNIA & EASTERN.**—This company, which operates a railroad between Klamath Falls, Ore., and Hildebrand, a distance of 24 miles, will within the next few months, extend its line from the latter point northward to Squaw Flat, a distance of eight miles, while during the first part of 1923 it is proposed to extend the line six miles further to Sprague river. This same company is also doing some work on what is known as the Bonanza branch, a line extending eastward from Dairy to Bonanza, a distance of seven miles. Part of the grading has been finished and a small amount of track laid and it is expected to complete this line early in 1923. The construction of another branch line known as the Swan Valley branch has also been undertaken. This will extend from a point 15 miles northeast of Klamath Falls into the Swan Valley region. Two miles of this branch is already completed and it is intended to extend it several miles further. The O. C. & E. Company contemplates eventually extending northward to Bend, Ore., where it will connect with the Oregon-Washington Railroad

& Navigation Company and the Oregon Trunk Line. The Klamath Falls-Bend line will be 175 miles in length. From a point 20 miles south of Bend a branch of the O. C. & E. will extend eastward to Crane, a terminus of a branch line of the Union Pacific. The line from Silver Lake to Lakeview, a distance of 80 miles, will connect at the latter point with the Nevada-California-Oregon, while at Klamath Falls a direct connection is made with the Southern Pacific. All the surveys for this system, which in total, will comprise 423 miles of line, have been completed and a large part of the right-of-way obtained. The cost of the entire project will be \$10,000,000, much of which has been raised locally. In anticipation of this construction, numerous lumbering, irrigation and other enterprises have been inaugurated, some of them 75 miles ahead of the track.

**LAKE SUPERIOR & ISHPEMING.**—This company will construct a steel repair shop, 69 ft. by 301 ft., a paint and coach shop, 48 ft. by 100 ft., and a woodmill, 47 ft. by 100 ft., at Marquette, Mich., the total cost of which is estimated at \$250,000.

**SOUTHERN PACIFIC.**—This company will construct a new five span steel girder bridge approximately 929 ft. long across the Rio Grande river at Eagle Pass, to cost about \$225,000. The bridge will be owned jointly by the Mexican National and the Southern Pacific.

**UNION PACIFIC.**—This company is receiving bids for the extension and repairing of its passenger station at Kearney, Neb.

**UNION PACIFIC.**—This company, in conjunction with the city of Denver, Colo., has awarded contracts for the Broadway viaduct of steel truss and girder spans having a total length, including embankment and reinforced concrete approaches of 2,257 ft. To C. S. Lambic & Company, Denver, was awarded the contract for the concrete substructure of the viaduct proper and to D. Munro, of Kansas City, Kan., for the reinforced concrete work in the approaches. The steel superstructure will be furnished by the American Bridge Company and erected by the Kansas City Bridge Company. This company has also awarded a contract for an addition to its passenger station at Cheyenne, Wyo., to H. W. Baum Company, Salt Lake City, Utah.

**THE ST. LOUIS-SAN FRANCISCO** moved 730 cars of peaches from southeast Missouri and northeast Arkansas orchards during the season which recently closed. Of the total, 476 cars were from the Fort Smith district; 222 cars from the Koshkonong, and Brandsville districts; 24 from the Springfield district, and eight from Oklahoma. This is considered one of the best seasons experienced by the growers of southeast Missouri.

**LABOR UNION DISCIPLINE.**—Too little public attention has been paid to certain acts of discipline worthy of praise for organized labor. There was lately published a list of a dozen trainmen who were punished by their union for the abandonment of passenger trains in Arizona and California. All of them lost their union cards, although a majority of them were union officials. This action does credit alike to the character and the intelligence of the train-service brotherhoods. It is in line with their previous refusal to break their service contracts for the purpose of striking in sympathy with the shopmen, and with the threat to revoke the charter of the unions whose strike contributed to the receivership of the Chicago & Alton Railroad. The train-service brotherhoods are entitled to recognition of the fact that their conduct in these cases supports their character as a superior sort of union. The brotherhoods abide both by their own laws and by the laws of the country, and within the past few days their highest officials have rebuked members who have rashly broken contracts of employment for the purpose of striking in a manner "unlawful," according to brotherhood rules. These facts gain significance in contrast with the course of the unions affiliated with the American Federation of Labor. The difference in the conduct of the two sorts of unions shows why the train services have resisted all overtures from the Federation to join forces, and gives value to the independent action of the train services. The mechanics employed by the railways are in industrial competition with workers in private employ. Either can exchange their duties at will, and their pay should be approximately equal, all conditions considered. The train-service brotherhoods are real railway workers, and the country is fortunate that they are so conservative in their policies.—*New York Times*.

## Railway Financial News

**BANGOR & AROOSTOOK.—Preferred Stock Offered.**—An issue of \$3,480,000 7 per cent cumulative preferred stock offered by Brown Brothers & Co. and Hayden, Stone & Co., at 95 and accrued dividend, to yield 7.36 per cent, has been over-subscribed.

**CHICAGO, INDIANAPOLIS & LOUISVILLE.—Equipment Trust Authorized.**—This company has been authorized by the Interstate Commerce Commission to assume obligation and liability in respect of \$725,000 of equipment trust certificates.

**CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—Stock Exchange Offer Extended.**—See New York Central.

**DELAWARE, LACKAWANNA & WESTERN.—Annual Report.**—The annual report issued this week shows the following income account for the year ended December 31, 1921, compared with the combined corporate and federal account for the previous year:

	1921	1920
Total revenues.....	\$85,977,815	\$83,340,062
Total expenses.....	67,872,058	73,898,430
Net revenue from operation.....	18,105,757	9,441,632
Tax accruals.....	5,312,066	4,539,785
Operating income.....	12,793,691	4,899,037
Add additional income.....	13,478,144	19,382,212
Gross income.....	26,259,539	24,281,249
Deductions from income.....	7,101,136	9,622,805
Net income for year.....	19,158,403	*14,658,444
Less dividends declared.....	13,510,576	8,444,110
Balance, surplus.....	5,647,827	6,214,334

\*To afford, as far as possible, a correct basis for comparison, the operating results of the U. S. R. A. for the months of January and February, 1920, together with overlapping items relating thereto, are included with the operating results of the company for the ten months of 1920, resulting in an increase in this item of \$983,334.81 over the actual net income of the company, as shown on page 6 of the annual report for the year 1920.

**DENVER & RIO GRANDE WESTERN.—Expenditures for Improvements.**—A correspondent at Denver, Colo., states that the receiver of this road is asking permission to spend \$23,000,000 for improvements during the next three years.

**CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—Annual Report.**—The annual report issued this week shows the following income account for the year ended December 31, 1921:

	1921	*1920
Operating revenues.....	\$17,170,446	
Operating expenses.....	14,789,237	
Net revenue from operations.....	2,381,209	
Taxes.....	643,547	
Operating income.....	1,942,444	\$4,026,759
Total non-operating income.....	276,869	134,359
Gross income.....	2,219,314	4,161,117
Rent for leased roads.....	1,324,205	1,218,954
Interest on equipment obligations.....	153,645	175,040
Total deductions.....	1,515,778	1,432,482
Total available income.....	703,535	2,728,635
Dividends of 5 per cent on preferred stock.....	122,670	122,670
Dividends of 12 per cent in 1921 and 13 per cent in 1920 on common stock.....	358,800	388,700
Additions and betterments charged to income.....		950,000
Balance carried to profit and loss.....	222,065	1,267,265

\* Operating revenues and expenses are not comparable, the property having been operated by the U. S. R. A. during January and February, 1920.

**CHICAGO, ROCK ISLAND & PACIFIC.—Bonds Sold.**—Speyer & Co. and Harris, Forbes & Co., subject to the approval of the Interstate Commerce Commission, have sold an issue of \$5,000,000 first and refunding mortgage 4 per cent gold bonds, due April 1, 1934.

**GEORGIA SOUTHERN & FLORIDA.—Annual Report.**—The income account for the year ended December 31, 1921, follows:

	1921	*1920
Operating revenues.....	\$4,586,770	
Operating expenses.....	4,669,211	
Net revenue from operations.....	†82,441	
Taxes.....	206,313	
Operating income.....	†552,561	†\$277,852
Total non-operating income.....	393,002	216,912
Gross income.....	†159,559	†60,940
Interest on funded debt.....	280,000	280,000
Total deductions from gross income.....	316,226	309,785
Deficits charged to profit and loss.....	†475,784	†370,725

\*Operating revenues and expenses are not comparable, the property having been operated by the U. S. R. A. during January and February, 1920.  
†Deficit.

**ILLINOIS CENTRAL.—Asks Authority for a New Line.**—This company, the Chicago, St. Louis & New Orleans and the Kentucky Midland have filed a joint application with the Interstate Commerce Commission for orders authorizing the purchase of the

Kentucky Midland by the Chicago, St. Louis & New Orleans for \$255,000 and for the construction of a new line connecting with it and to be operated in connection with it by the Illinois Central under lease. The line of the Kentucky Midland extends from Central City to a point near Earles, Ky., 11 miles, and it is proposed to build an extension from Earles to a point 5 miles north of Dawson Springs, Ky.

**Equipment Trust Notes.**—Kuhn, Loeb & Co. have placed privately an issue of \$6,645,000 Illinois Central 1-15-year 4½ per cent equipment trust notes, at price to yield about 4.95 per cent. These are the first equipment trust notes issued since the war to bear 4½ per cent interest.

**LACKAWANNA OF NEW JERSEY.—Stock Offered.**—Joseph Walker & Sons, of New York, are offering \$200,000 4 per cent capital stock of this company at a price to yield nearly 5 per cent. The total authorized capital stock amounts to \$11,000,000, of which \$10,750,000 is outstanding. The road is leased in perpetuity to the Delaware, Lackawanna & Western at a rental of 4 per cent per annum on capital stock.

**NEW YORK, CHICAGO & ST. LOUIS.—Equipment Trusts Sold.**—The Guaranty Company of New York, the Union Trust Company and Hayden, Miller & Co. of Cleveland, have sold at 100 and accrued dividend, \$3,150,000 equipment trust 5 per cent certificates. They are dated September 1, 1922, and mature \$225,000 each September 1, 1924 to 1937, inclusive.

**NEW YORK CENTRAL.—Exchange Offer Extended.**—The offer made to Cleveland, Cincinnati, Chicago & St. Louis stockholders to exchange New York Central stock for Big Four preferred and common on the basis of par for par for the preferred and 80 shares of New York Central for 100 shares of Big Four common has been extended until November 1. This extension offer was on condition, however, that holders surrendering Big Four common for exchange after September 28 should pay \$1 for each share of common stock thus exchanged in order to equalize the position of the common stockholders exchanging before and after that date.

**NORTHERN PACIFIC.—Dividend Declared.**—The directors have declared the regular quarterly dividend of \$1.25 a share, payable November 1 to holders of record October 2. This is the same dividend as was declared last March when the rate was reduced from \$1.75 to \$1.25 a share quarterly.

**READING COMPANY.—Listing.**—The New York Stock Exchange has authorized the listing of certificates of deposit of J. P. Morgan & Co. and Drexel & Co. for the general mortgage 4 per cent gold bonds, due 1997, of the Reading Company, and the Philadelphia & Reading Coal & Iron Company.

**SEABOARD AIR LINE.—Equipment Trusts Offered.**—Ladenburg, Thalman & Co., Redmond & Co., Kissel, Kinnicutt & Co., and Freeman & Co. are offering a new issue of \$2,560,000 5½ per cent equipment trust certificates, series U due semi-annually from 1923 to 1932 inclusive, at prices to yield from 5 to 5.75 per cent, according to maturity. The certificates are to be issued in part payment for standard equipment.

**TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—Authentication of Bonds Authorized.**—The Interstate Commerce Commission has authorized this company to procure authentication and delivery of \$2,499,000 of general mortgage 4 per cent gold bonds to be held in the treasury.

### Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—Common, 2 per cent, payable November 1 to holders of record September 29; preferred, 1¼ per cent, payable October 20 to holders of record September 29.

Kansas City Southern.—Preferred, 1 per cent, quarterly, payable October 16 to holders of record September 30.

Minneapolis, St. Paul & Sault Ste. Marie (Leased Lines).—\$2.00, semi-annually, payable October 1 to holders of record September 20.

New York Central.—1¼ per cent, quarterly, payable November 1 to holders of record September 29.

### Trend of Railway Stock and Bond Prices

	Sept. 19	Last Week	Last Year
Average price of 20 representative railway stocks.....	73.45	74.16	56.24
Average price of 20 representative railway bonds.....	89.80	90.37	76.47



## Railway Officers

### Executive

**W. H. Finley**, president of the Chicago & North Western with headquarters at Chicago, has been elected also president of the Chicago, St. Paul, Minneapolis & Omaha.

**J. M. Schweizer** has been appointed assistant to the vice-president of the Cuba Railroad with headquarters at Camaguey, Cuba, succeeding H. W. Lillengren, resigned.

**J. Fred Townsend**, of Pittsburgh, has been elected vice-president of the Lake Terminal Railroad, the McKeesport Connecting Railroad and the Benwood & Wheeling Connecting Railway.

**A. B. Atwater**, assistant to the president of the Grand Trunk, lines west of the Detroit and St. Clair rivers, with headquarters at Detroit, Mich., has retired from active service. Mr. Atwater was born in November, 1845, at Sheffield, O. He entered railway service in 1864, as a telegraph operator of the Cleveland & Erie. From October, 1865, to June, 1885, he was consecutively: in engineering service on the Jamestown division of the Cleveland & Erie; resident engineer on construction of the Canadian Southern; assistant engineer of the Port Dover & Lake Huron; general superintendent of the Georgian Bay & Lake Huron division of the Grand Trunk and chief engineer of the Chicago & Grand Trunk. In June, 1885, he was promoted to superintendent of the Grand Trunk lines west of the Detroit river, which position he held until July 12, 1898, when he became assistant general superintendent of the Michigan Central. He held this position until July, 1902, when he was made assistant to the president of the Grand Trunk, lines west of the Detroit and St. Clair rivers, the position he was holding at his retirement.

### Financial, Legal and Accounting

**H. A. Toland** has been appointed auditor of the Union Pacific at Omaha, Neb., succeeding H. J. Stirling.

**E. L. Parker** has been appointed auditor of freight accounts of the Seaboard Air Line succeeding B. B. McCaa, deceased.

**J. R. Turney**, assistant general solicitor of the St. Louis Southwestern, with headquarters at St. Louis, Mo., has been appointed acting general solicitor, with the same headquarters, succeeding D. Upthegrove, deceased.

**C. H. Bender**, assistant treasurer and paymaster of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been promoted to treasurer, with the same headquarters, and **W. R. Harley**, assistant secretary, with headquarters at Minneapolis, Minn., has been promoted to secretary, with the same headquarters. **J. E. Olson** has been appointed assistant treasurer and assistant secretary, with headquarters at Minneapolis, Minn.

### Operating

**T. F. Conklin** has been appointed general trainmaster of the Michigan Central, with headquarters at Detroit, Mich.

**P. L. Randall**, assistant to the superintendent of car service of the Pullman Company, has been appointed acting superintendent of car service succeeding D. J. Hinchey, resigned.

**J. P. Johnson**, assistant superintendent of the Canadian National, with headquarters at Prince Albert, Sask., has been promoted to superintendent of the Prince Albert division, with the same headquarters.

**F. C. Fox**, general manager of the Atchison, Topeka & Santa Fe, Eastern Lines, with headquarters at Topeka, Kan., who has been on a six months' leave of absence, resumes his duties October 1, succeeding **W. K. Etter**, acting general

manager who resumes his duties as assistant to the vice-president at Chicago, succeeding **G. W. Lupton**, who resumes his duties as superintendent of terminals at San Francisco, Cal.

**C. H. Gaffney**, whose appointment as superintendent of telegraph of the Central of New Jersey, with headquarters at Jersey City, was announced in the *Railway Age* of September



C. H. Gaffney

2, page 450, was born on July 27, 1867, at Lawrenceville, Mercer county, N. J. He was educated in the public schools at Lawrenceville and studied also with the International Correspondence School, Scranton, Pa., and Cooper Institute, New York City and was graduated from the Trenton (N. J.) Normal School. Mr. Gaffney entered railway service in 1883 with the Pennsylvania as a telegraph operator and served with that company in various capacities, including that of train dispatcher. After

leaving that company, he entered the service of John Hoey, president of the Adams Express Company, as private telegraph operator. After Mr. Hoey's death, he worked in various clerical capacities with this company and thereafter entered the employ of the National Service Docks Railway as assistant dispatcher and operator, which position he resigned in 1900 to become chief clerk to the supervisor of signals of the Central of New Jersey. Two years later he was appointed chief clerk to the superintendent of telegraph and remained continuously in that position until the time of his recent promotion.

### Traffic

**G. W. Neudling** has been appointed general agent of the Kansas, Oklahoma & Gulf, with headquarters at St. Louis, Mo.

**F. G. Brown** has been appointed commercial freight agent of the Western Maryland, with headquarters at Kansas City, Mo.

**D. R. Peck** has been appointed district freight agent of the New Orleans Great Northern, with headquarters at Chicago, Ill.

**L. S. Wickes** has been appointed assistant general freight agent of the Oklahoma Southwestern, with headquarters at Oklahoma City, Okla.

**F. D. Wilson**, traveling freight and passenger agent of the Union Pacific, with headquarters at Reno, Nev., has been appointed general agent, with the same headquarters.

**H. W. Brodie**, general passenger agent of the Canadian Pacific with headquarters at Vancouver, has been appointed assistant passenger traffic manager with headquarters at Montreal. **W. H. Snell**, general passenger agent at Montreal, succeeds Mr. Brodie at Vancouver. **George A. Walton**, general passenger agent at Winnipeg, has been transferred in a similar capacity to Montreal. **R. C. McNellie**, assistant passenger agent at Winnipeg, has been promoted to general passenger agent with the same headquarters. **N. R. DesBrisay**, district passenger agent with headquarters at St. John, N. B., has been appointed assistant general passenger agent with headquarters at Winnipeg. **G. P. Burpee**, general agent at Cleveland, Ohio, has been appointed district passenger agent at St. John, N. B. **Walter Maughan**, assistant general passenger agent with headquarters at Montreal, has been appointed assistant to the general passenger traffic manager

with the same headquarters. **W. B. Howard**, district passenger agent at Toronto, has been appointed assistant general passenger agent with headquarters at Montreal. **W. Fulton**, assistant district passenger agent at Toronto, has been promoted to district passenger agent. **W. Horder**, chief clerk in the general passenger department at Montreal, has been promoted to assistant district passenger agent at Toronto.

**Louis R. Jones**, whose appointment as assistant general freight agent of the Philadelphia & Reading was announced in the *Railway Age* of September 9, page 491, was born on February 22, 1882, at Haddonfield, N. J., and attended public school in that city from 1888 to 1901. On July 29, 1901, he entered the service of the Philadelphia & Reading as a clerk in the comptroller's office, Reading Terminal, Philadelphia. In connection with this position he also served in the offices of the auditor of freight traffic, auditor of traffic receipts and auditor of disbursements. On May 1, 1907, he was transferred to the freight traffic department as tariff and rate clerk, holding that position until February 28, 1920. He was then promoted to chief clerk of the freight traffic department, which position he held until the time of his recent promotion.

### Mechanical

**J. J. Hanlin** has been appointed assistant superintendent of motive power of the Seaboard Air Line, with headquarters at Portsmouth, Va., effective September 19.

**Robert Collett** has been appointed superintendent of fuel and locomotive performance of the New York Central with headquarters at New York, effective September 1.

**B. F. Bardo** has been appointed superintendent of electric transmission on the New Haven in charge of operation and maintenance of the wire plant between New York and Cedar Hill with headquarters at Cos Cob, Conn., reporting to H. A. Shepard, general superintendent of electric transmission and communication. Mr. Bardo was born in Wilkes Barre, Pa., December 16, 1889. He was educated in the Morris High School, New York City, and Cornell University, being graduated from the latter institution with a degree of mechanical engineer in 1913. After graduation he served for a little more than a year in the testing department of the General Electric Company at Schenectady, N. Y., and at Pittsfield, Mass. In August, 1914, he entered the services of the New York, New Haven & Hartford in the office of the superintendent of power. In October, 1915, Mr. Bardo was appointed inspector of power plants and in November, 1917, was promoted to engineer of power plants, serving in that capacity until his present appointment.



B. F. Bardo

### Engineering, Maintenance of Way and Signaling

**S. J. Stinson**, signal maintainer of the Canadian National, with headquarters at Saskatoon, Sask., has been appointed acting signal supervisor of the Saskatchewan district, with the same headquarters, succeeding R. G. Gardner, transferred.

**T. L. Doyle**, assistant division engineer of the Mackinaw division of the Pennsylvania, with headquarters at Grand Rapids, Mich., has been promoted to assistant to the chief engineer of the Pennsylvania-Detroit Railroad, with headquarters at Detroit, Mich. **R. Stephens**, an assistant in the engineering department of the Mackinaw division, with head-

quarters at Grand Rapids, Mich., has been appointed acting assistant division engineer of that division, with the same headquarters, succeeding Mr. Doyle.

### Obituary

**C. A. Benscoter**, assistant general passenger agent of the Southern with headquarters at Knoxville, Tenn., died September 19.

**J. R. Dickinson**, assistant general solicitor of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, Ill., died in that city on September 17, after an extended illness.

**W. H. Richardson**, general passenger agent of the Chicago & Eastern Illinois, with headquarters at Chicago, whose death on September 4 was reported in the *Railway Age* of September 9 was born on January 25, 1862, at Bloomington, Illinois. He entered railway service in 1880 as a stenographer to the division superintendent of the Chicago & North Western at Baraboo, Wisconsin. In 1882, he left this company to enter the employment of the Chicago & Eastern Illinois as a stenographer. Six years later he was promoted to rate clerk and remained in this capacity until 1895, when he was promoted to chief clerk in the passenger traffic department. In 1900 he was promoted to general passenger agent which position he held at the time of his death.



W. H. Richardson

**Charles M. Carter**, assistant treasurer of the Chicago, Burlington & Quincy, with headquarters at St. Joseph, Mo., died on September 1. Mr. Carter was born on September 22, 1852, at Cambridge, Mass. He entered railway service on August 1, 1876, as a clerk in the assistant treasurer's office of the Burlington & Missouri River, at Omaha, Neb. From March 1, 1877, to August 1, 1880, he was assistant treasurer of the Chicago, Clinton, Dubuque & Minnesota at Dubuque, Ia. From August 1, 1880, to January 1, 1885, he was assistant treasurer and auditor of the Kansas City, St. Joseph & Council Bluffs at St. Joseph, Mo., and on August 1, 1884, he was also acting auditor of the Hannibal & St. Joseph. He was appointed assistant auditor of these roads on January 1, 1885, which position he held until May 1, 1885, when he was promoted to auditor. He was also auditor of the St. Louis, Keokuk & Northwestern and the Chicago, Burlington & Kansas City from July 1, 1891, to February 1, 1903. He was appointed assistant treasurer of the Chicago, Burlington & Quincy, lines east of the Missouri river on February 1, 1903, his jurisdiction later being extended over the system, which position he held to the time of his death.



Chas. M. Carter